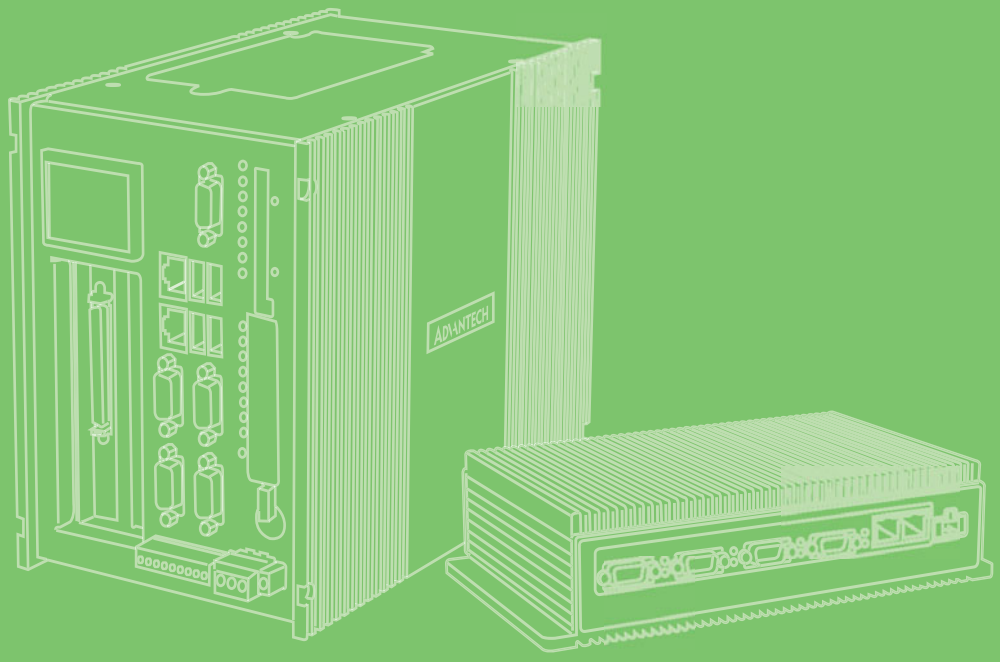

User Manual

UNO-3000G Series

Intel Core i7/Celeron® Processors Embedded Automation Computers, with 3/5 PCI(e) Extension Slots

ADVANTECH

Enabling an Intelligent Planet

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This manual applies to the below models which are abbreviated as UNO-3000G series products in this article.

UNO-3083G

UNO-3085G

UNO-3073G

UNO-3075G

UNO-3073GL

UNO-3075GL

Support

For more information on this and other Advantech products, please visit our websites at: http://www.advantech.com

For technical support and service, please visit our support website at:

http://www.advantech.com/support/

Part No. 2003308300 Edition 1

Printed in China February 2013

Product Warranty (2 years)

Advantech warrants to you, the original purchaser, that each of its products will be free from defects in materials and workmanship for two years from the date of purchase.

This warranty does not apply to any products which have been repaired or altered by persons other than repair personnel authorized by Advantech, or which have been subject to misuse, abuse, accident or improper installation. Advantech assumes no liability under the terms of this warranty as a consequence of such events.

Because of Advantech's high quality-control standards and rigorous testing, most of our customers never need to use our repair service. If an Advantech product is defective, it will be repaired or replaced at no charge during the warranty period. For out-of-warranty repairs, you will be billed according to the cost of replacement materials, service time and freight. Please consult your dealer for more details.

If you think you have a defective product, follow these steps:

1. Collect all the information about the problem encountered. (For example, CPU speed, Advantech products used, other hardware and software used, etc.) Note anything abnormal and list any onscreen messages you get when the problem occurs.
2. Call your dealer and describe the problem. Please have your manual, product, and any helpful information readily available.
3. If your product is diagnosed as defective, obtain an RMA (return merchandize authorization) number from your dealer. This allows us to process your return more quickly.
4. Carefully pack the defective product, a fully-completed Repair and Replacement Order Card and a photocopy proof of purchase date (such as your sales receipt) in a shippable container. A product returned without proof of the purchase date is not eligible for warranty service.
5. Write the RMA number visibly on the outside of the package and ship it prepaid to your dealer.

Declaration of Conformity

CE

This product has passed the CE test for environmental specifications when shielded cables are used for external wiring. We recommend the use of shielded cables. This kind of cable is available from Advantech. Please contact your local supplier for ordering information.

FCC Class A

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Technical Support and Assistance

1. Visit the Advantech web site at www.advantech.com/support where you can find the latest information about the product.
2. Contact your distributor, sales representative, or Advantech's customer service center for technical support if you need additional assistance. Please have the following information ready before you call:
   - Product name and serial number
   - Description of your peripheral attachments
   - Description of your software (operating system, version, application software, etc.)
   - A complete description of the problem
   - The exact wording of any error messages

Safety Precaution - Static Electricity

Follow these simple precautions to protect yourself from harm and the products from damage.

- To avoid electrical shock, always disconnect the power from your PC chassis before you work on it. Don't touch any components on the CPU card or other cards while the PC is on.
- Disconnect power before making any configuration changes. The sudden rush of power as you connect a jumper or install a card may damage sensitive electronic components.

Safety Instructions

1. Read these safety instructions carefully.
2. Keep this User Manual for later reference.
3. Disconnect this equipment from any AC outlet before cleaning. Use a damp cloth. Do not use liquid or spray detergents for cleaning.
4. For plug-in equipment, the power outlet socket must be located near the equipment and must be easily accessible.
5. Keep this equipment away from humidity.
6. Put this equipment on a reliable surface during installation. Dropping it or letting it fall may cause damage.
7. The openings on the enclosure are for air convection. Protect the equipment from overheating. DO NOT COVER THE OPENINGS.
8. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
9. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
10. All cautions and warnings on the equipment should be noted.
11. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient overvoltage.
12. Never pour any liquid into an opening. This may cause fire or electrical shock.
13. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.
14. If one of the following situations arises, get the equipment checked by service personnel:
15. The power cord or plug is damaged.
16. Liquid has penetrated into the equipment.
17. The equipment has been exposed to moisture.
18. The equipment does not work well, or you cannot get it to work according to the user's manual.
19. The equipment has been dropped and damaged.
20. The equipment has obvious signs of breakage.
21. DO NOT LEAVE THIS EQUIPMENT IN AN ENVIRONMENT WHERE THE STORAGE TEMPERATURE MAY GO BELOW -20° C (-4° F) OR ABOVE 60° C (140° F). THIS COULD DAMAGE THE EQUIPMENT. THE EQUIPMENT SHOULD BE IN A CONTROLLED ENVIRONMENT.
22. CAUTION: DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED. REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE RECOMMENDED BY THE MANUFACTURER, DISCARD USED BATTERIES ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.
23. The sound pressure level at the operator's position according to IEC 704-1:1982 is no more than 70 dB (A).

DISCLAIMER: This set of instructions is given according to IEC 704-1. Advantech disclaims all responsibility for the accuracy of any statements contained herein.

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Chapter 1

Overview

This chapter provides an overview of UNO-3000G series' specifications.
Sections include:

- Introduction
- Hardware specification
- Safety precautions
- Chassis dimensions
- Accessories

1.1 Introduction

Advantech's UNO-3000G is an embedded Application Ready Platform (ARP) with Intel high performance 2nd generation Core i7/Celeron 800 series processor and Cougar Point-M QM67 PCH. It supports up to five PCI or PCI express slots, which can fulfill extensive requirements in various projects.

UNO-3000G series products provide rich interfaces, including DVI-I and HDMI for high definition displays (support 2 independent displays), 2 Giga LANs which support teaming function with fault tolerance, link aggregation and load balance features, 2 serial ports which is designed by CPLD to achieve various function, 2 Mini-PCIe slots and 2 SIM card sockets that provide great expandability for WiFi module and 3G module. It also features internal USB on expansion board for dongle to protect software security.

Besides, UNO-3000G series products provide 2 user LEDs to alarm in exception situation, such as power failure, battery failure and over current, etc. Also, it adopts dual power input for redundancy and two front accessible HDD/SSD bays to support RAID0/1.

Different from general PCs, UNO-3000G series products support various optional expansion slots, including PCIex16, PCIex8, PCIe x1 and PCI. So, users can conveniently select expansion boards based on their requirements.

1.2 Hardware Specifications

1.2.1 General

Certification	CE, UL, CCC, FCC, BSMI
Dimension(W×D×H)	UNO-3083G/73G/73GL: 148×238×177 mm (5.8"×9.3"×7.0") UNO-3085G/75G/75GL: 193×238×177 mm (7.6" ×9.3" ×7.0")
Enclosure	Aluminum
Mounting	Wall mount, Stand mount, Panel mount
Power Consumption	UNO-3083G/3085G: 45W (Typical, no card added) UNO-3073G/3075G: 35W (Typical, no card added) UNO-3073GL/3075GL: 25W (Typical, no card added)
Power Requirements	12V±20%/ 24V±20% (e.g +24 V @ 5 A), support AT/ATX power mode by Jumper selection and BIOS AT simulation mode(support system reboot automatically after power recovery)
Weight	UNO-3083G/3073G/3073GL: 4.5 kg UNO-3085G/3075G/3075GL: 5.0 kg
OS Support	Windows XP, Windows7, Windows8, WES7, WES2009, Linux
System Design	Fanless and no internal cable (except COM1 and COM2)
Remote Management	Built-in Advantech DiagAnywhere agent in WES2009/WES7

1.3 System Hardware

CPU	UNO-3083G/3085G: Intel Core® i7-2655LE (4M Cache, 2.20GHz) UNO-3073G/3075G: Intel Celeron 847E (2M Cache, 1.10GHz) UNO-3073GL/3075GL: Intel Celeron 807UE (1M Cache, 1.0GHz)
Memory	UNO-3083G/3085G: 4G/8G DDR3 SDRAM burn-in (2 × Memory slots, up to 16G) UNO-3073G/3075G: 4G DDR3 SDRAM burn-in (2 ×memory slots, up to 16G) UNO-3073GL/3075GL: 4G DDR3 SDRAM burn-in (1 ×memory slot, up to 4G)
Indicators	LEDs for power, battery, LAN (active status) and serial port (Tx, Rx), user defined
Storage	CF: 2 ×CFast slots HDD: 2 ×2.5” SATA HDD/SSD bays, support SATA Gen3.0
Display	1 ×DVI-I, 1 ×HDMI (support 2 independent displays)
Watchdog Timer	256 levels time interval, programmable from 1 to 255 sec
Expansion Slots	2 ×Mini PCIe slots, 2 ×SIM card sockets
PCI Slot Power	12V@3A -12V@0.3A +5V @6A +3.3V @6A Note: Total power consumption combined on PCI slots should be less than 40 Watt.

1.3.1 I/O Interfaces

Serial Ports	2 × RS-232/422/485 with DB9 connectors, automatic RS-485 data flow control, 2 ×RS-232 (optional)
LAN	2 ×10/100/1000 Base-T RJ45 ports Support AMT7.0 (UNO-3083G/3085G only) and wake on LAN Burn-in boot ROM in flash BIOS
USB Ports	9 ×USB2.0 ports (one internal)
Audio	1 ×Mic in, 1 ×Line out

1.3.2 Environment

Relative Humidity	95% @40°C (Non-condensing)
Operating Temperature	-10 ~ 60°C (14~140°F) @ 5 ~ 85% RH. (with air flow)
Shock Protection	IEC 60068-2-27 Compact Flash: 50 G @ wall mount, half sine, 11 ms HDD: 20 G @ wall mount, half sine, 11 ms
Vibration Protection	IEC 60068-2-64 (Random 1 Oct./min, 1hr/axis.) Compact Flash: 2 Grms @ 5 ~ 500 Hz HDD: 0.5 Grms @ 5 ~ 500 Hz

1.3.3 Expansion Board(Additional purchase required)

Backplane	Description	Where Used
UNO-3083G-BP01E	1 ×PCIe×16 slot and 2 ×PCI slots	UNO-3083G/3073G
UNO-3083G-BP02E	2 ×PCIe×8 slots and 1 ×PCI slot	UNO-3083G/3073G
UNO-3083G-BP03E	1 ×PCIe×1 slot and 2 ×PCI slots	UNO-3083G/3073G/3073GL
UNO-3083G-BP04E	2 ×PCIe×1 slots and 1 ×PCI slot	UNO-3083G/3073G/3073GL
UNO-3085G-BP01E	1 ×PCIe×16 slot and 4 ×PCI slots	UNO-3085G/3075G
UNO-3085G-BP02E	2 ×PCIe×8 slots and 3 ×PCI slots	UNO-3085G/3075G
UNO-3085G-BP03E	2 ×PCIe×1 slot and 3 ×PCI slots	UNO-3085G/3075G/3075GL

1.4 Safety Precautions

The following sections tell how to make each connection. In most cases, you will simply need to connect a standard cable.

Warning! *Always disconnect the power cord from your chassis whenever you are working on it. Do not connect while the power is on. A sudden rush of power can damage sensitive electronic components. Only experienced electronics personnel should open the chassis.*

Caution! *Always ground yourself to remove any static electric charge before touching UNO-3000G series. Modern electronic devices are very sensitive to static electric charges. Use a grounding wrist strap at all times. Place all electronic components on a static-dissipative surface or in a static-shielded bag.*

1.5 Chassis Dimensions

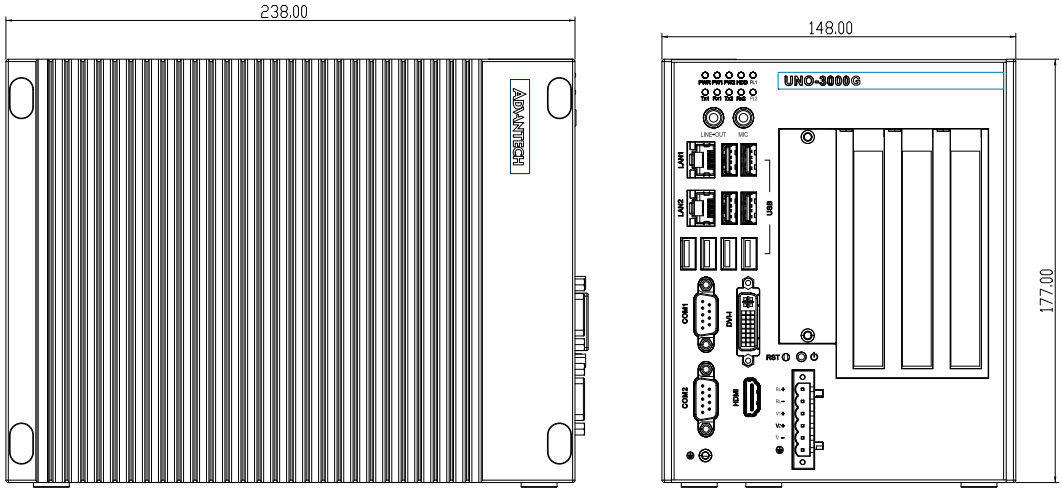


Figure 1.1 UNO-3083G/3073G/3073GL Dimensions

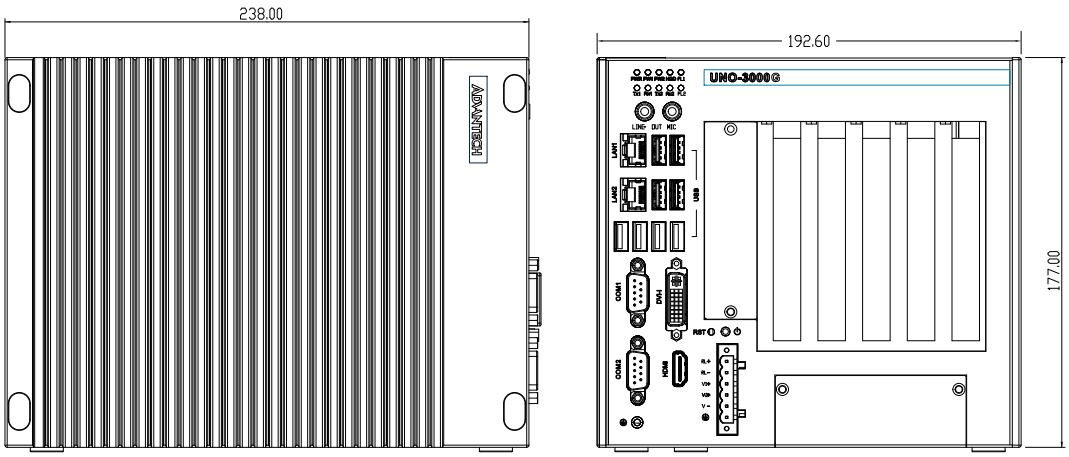


Figure 1.2 UNO-3085G/3075G/3075GL Dimensions

1.6 Accessories

Please refer to the below accessories list for UNO-3000G series.

- 1 × 6-pin plug-in block for power wiring
- 1 × DVI- VGA Antenna connector
- 3 × PCI holders for UNO-3083G/73G/73GL; 5 ×PCI holders for UNO-3085G/75G/75GL
- 2 × HDD brackets and screws
- 1 × Warranty card
- 1 × UNO series driver &utility DVD-ROM
- 1× Backplane holder
- 1 × EMI bead core

Chapter 2

Hardware Functionality

This chapter shows how to setup UNO-3000G series' hardware functions, including connecting peripherals, setting switches and indicators.

Sections include:

- **Peripherals**
- **RS-232 Interface**
- **RS-422/485 Interface**
- **LAN / Ethernet Connector**
- **Power Connector**
- **Mini PCIe Socket**
- **PS/2 Mouse and Keyboard Connector**
- **Audio Connector**
- **USB Connector**
- **DVI/DP/HDMI Display Connector**
- **Reset Button**

2.1 Introduction

The following figures show the interfaces on UNO-3083G/73G(L) and UNO-3085G/75G(L). And the following sections give you detail information for each peripheral.

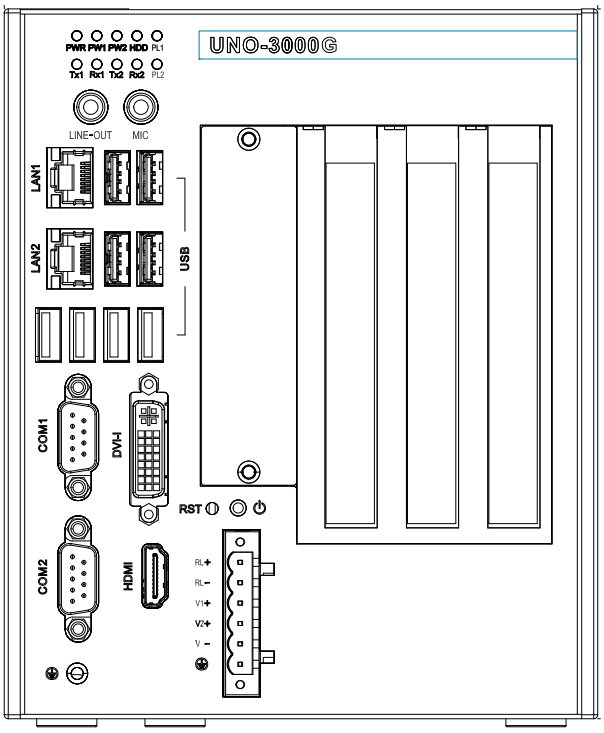


Figure 2.1 Front Panel of UNO-3083G/3073G/3073GL

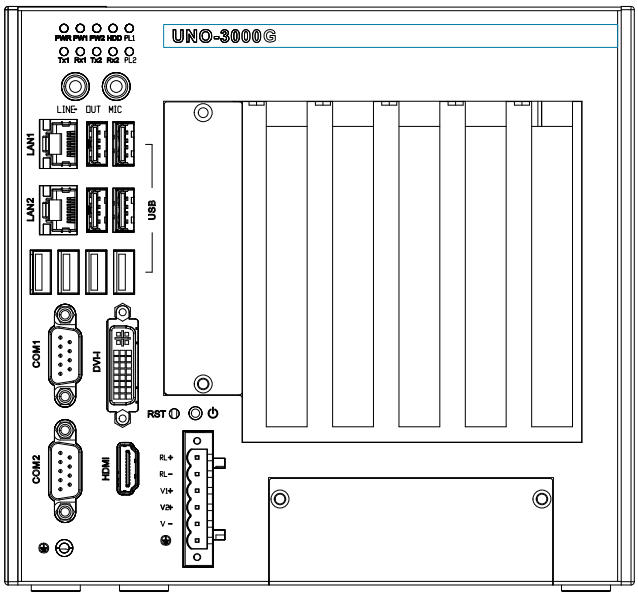


Figure 2.2 Front Panel of UNO-3085G/3075G/3075GL

2.2 Serial Communication Interface (COM1~COM4)

UNO-3000G offers two standard RS232/422/485 ports(COM1, COM2) and two optional standard RS232 ports(COM3, COM4).

The IRQ and I/O address of serial ports are listed as below.

COM1: 3F8, IRQ4

COM2: 2F8, IRQ3

COM3: 3E8, IRQ10

COM4: 2E8, IRQ10

These settings can be adjusted in the BIOS setup.

2.2.1 RS232/422/485 Interface (COM1~COM2)

UNO-3000G offers two RS232/422/485 serial communication interfaces: COM1 and COM2. Please refer to Appendix A.4 for their pin assignment. The default setting of COM1 and COM2 is RS422/485.

2.2.2 RS-422/485 detection

In RS-422/485 mode, UNO-3000G automatically detects signals to match RS-422 or RS-485 networks. (No jumper change required)

2.2.3 Automatic Data Flow Control Function for RS-485

In RS-485 mode, UNO-3000G automatically detects the direction of incoming data and switches its transmission direction accordingly. So no handshaking signal (e.g. RTS signal) is necessary. This lets you conveniently build an RS-485 network with just two wires. More importantly, application software previously written for half duplex RS-232 environments can be maintained without modification.

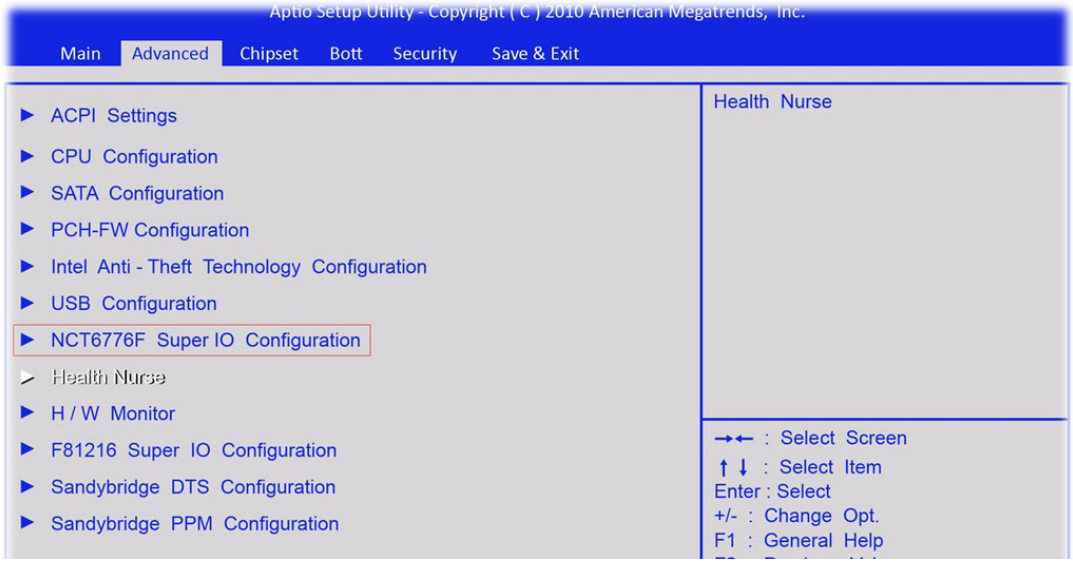
2.2.4 RS-232/422/485 Selection

COM1 and COM2 support 9-wire RS-232/422/485 interface. The system detects RS-422 or RS-485 automatically for COM1 and COM2.

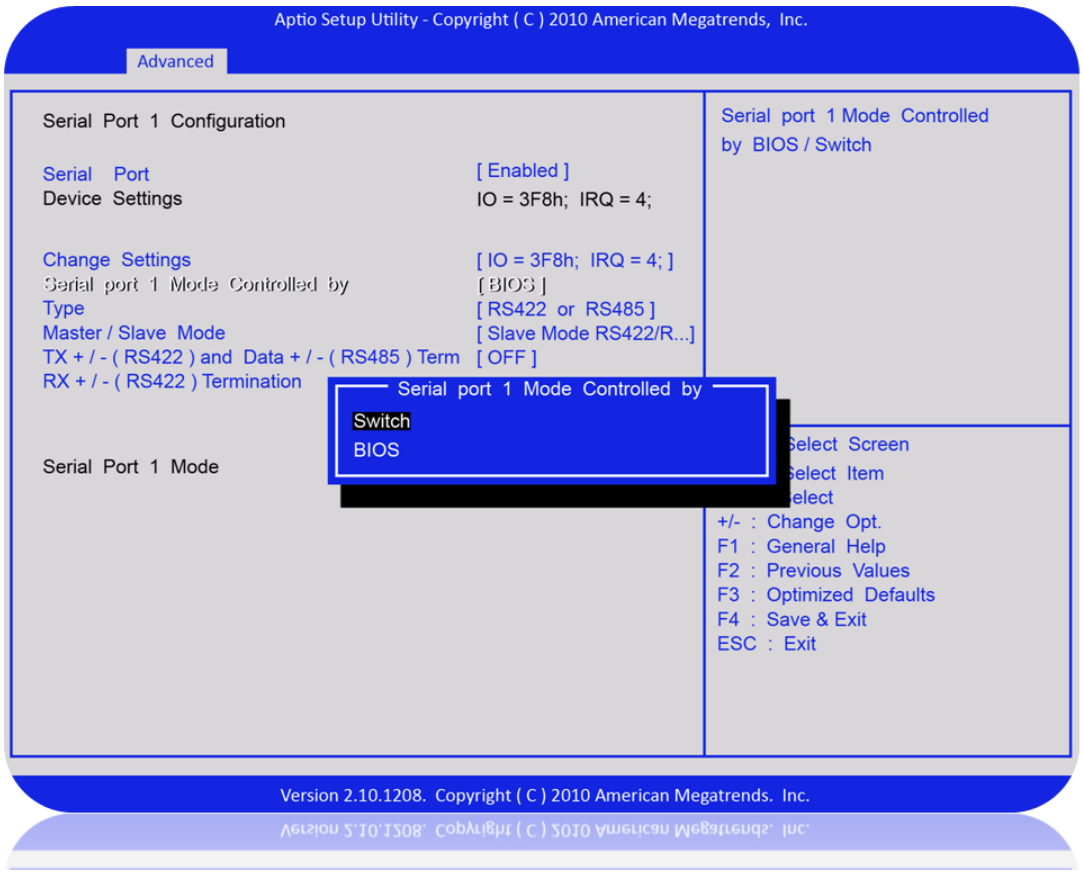
User can set RS-422/RS-485 mode for COM1 and COM2 by the following two ways.

- BIOS Setup

1. Press "F2" in the boot-up screen to enter BIOS setup utility.

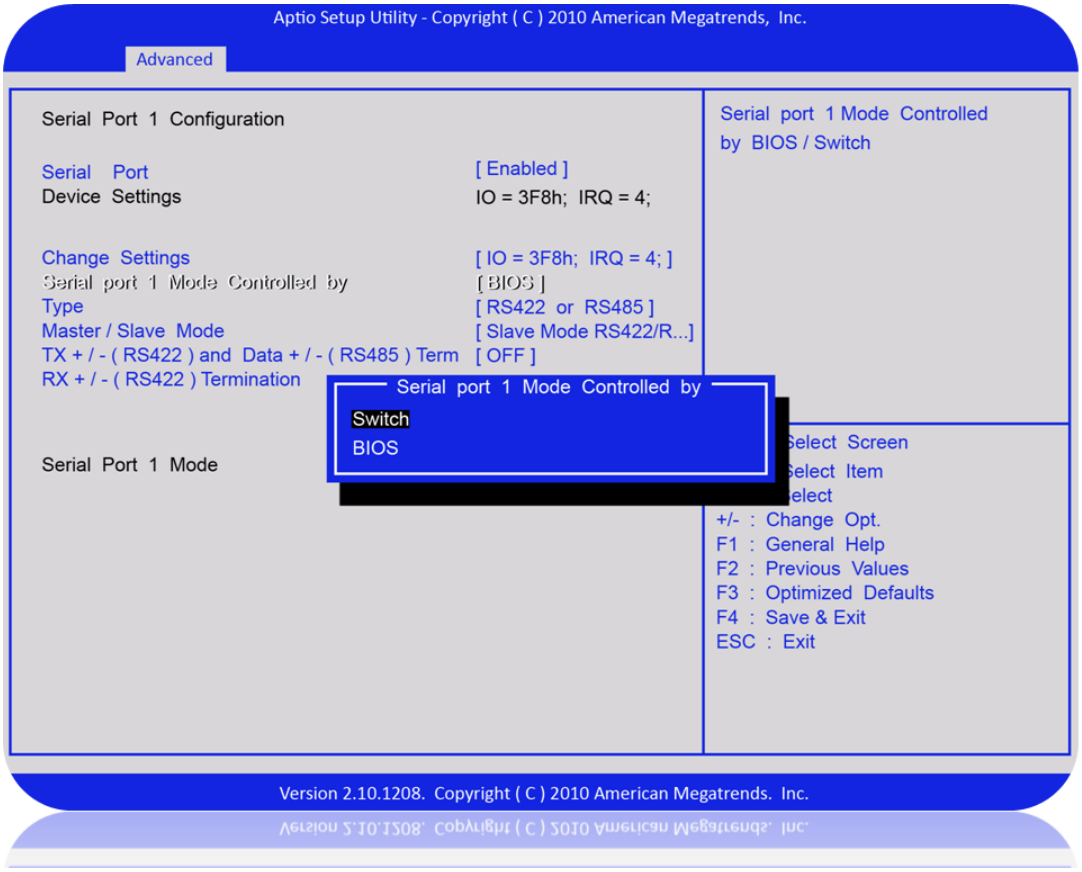


2. Set Serial Port1 or Serial Port2 in sub-manu "Advanced/NCT6776F Super I/O Configuration.


Aptio Setup Utility - Copyright (C) 2010 American Megatrends, Inc.
Advanced
Serial Port 1 Configuration
Serial Port
Device Settings
[Enabled]
IO = 3F8h; IRQ = 4;
Change Settings
[IO = 3F8h; IRQ = 4;]
Serial port 1 Mode Controlled by
[BIOS]
Type
[RS422 or RS485]
Master / Slave Mode
[Slave Mode RS422/R...]
TX + / - (RS422) and Data + / - (RS485) Term
[OFF]
RX + / - (RS422) Termination
Serial port 1 Mode Controlled by
Switch
BIOS
Serial Port 1 Mode
Serial port 1 Mode Controlled by BIOS / Switch
+/- : Change Opt.
F1 : General Help
F2 : Previous Values
F3 : Optimized Defaults
F4 : Save & Exit
ESC : Exit
Version 2.10.1208. Copyright (C) 2010 American Megatrends. Inc.

- Toggle Switch

1. Set Item "serial port X controlled by" to "Switch" in BIOS setup sub-manu "Advanced/NCT6776F Super I/O Configuration/Serial Port X Configuration".


Aptio Setup Utility - Copyright (C) 2010 American Megatrends, Inc.
Advanced
Serial Port 1 Configuration
Serial Port
Device Settings
[Enabled]
IO = 3F8h; IRQ = 4;
Change Settings
[IO = 3F8h; IRQ = 4;]
Serial port 1 Mode Controlled by
[BIOS]
Type
[RS422 or RS485]
Master / Slave Mode
[Slave Mode RS422/R...]
TX + / - (RS422) and Data + / - (RS485) Term
[OFF]
RX + / - (RS422) Termination
Serial port 1 Mode Controlled by
Switch
BIOS
Serial Port 1 Mode
Serial port 1 Mode Controlled by BIOS / Switch
+/- : Change Opt.
F1 : General Help
F2 : Previous Values
F3 : Optimized Defaults
F4 : Save & Exit
ESC : Exit
Version 2.10.1208. Copyright (C) 2010 American Megatrends. Inc.

2. Switch the internal SW1 and SW4 according to the Table2.1 and Table2.2. Please refer to Appendix A.2 for switch's location.

Table 2.1: Terminal Resistor Setting for COM1

SW1				Description	Function
Pin4	Pin3	Pin2	Pin1		
X	X	X	On	COM1 Mode RS232	RS232
On	On	On	Off	COM1 Master Mode RS422 with Tx, Rx termination	RS422
On	On	Off	Off	COM1 Slave Mode RS422/RS485 with Tx, Rx termination	RS422/RS485
On	Off	On	Off	COM1 Master Mode RS422 with Rx termination	RS422
On	Off	Off	Off	COM1 Slave Mode RS422 with Rx termination or RS485	RS422/RS485
Off	On	On	Off	COM1 Master Mode RS422 with Tx, termination	RS422
Off	On	Off	Off	COM1 Slave Mode RS422/RS485 with Tx termination	RS422/RS485
Off	Off	On	Off	COM1 Master Mode RS422	RS422
Off	Off	Off	Off	COM1 Slave Mode RS422 or RS485	RS422/RS485

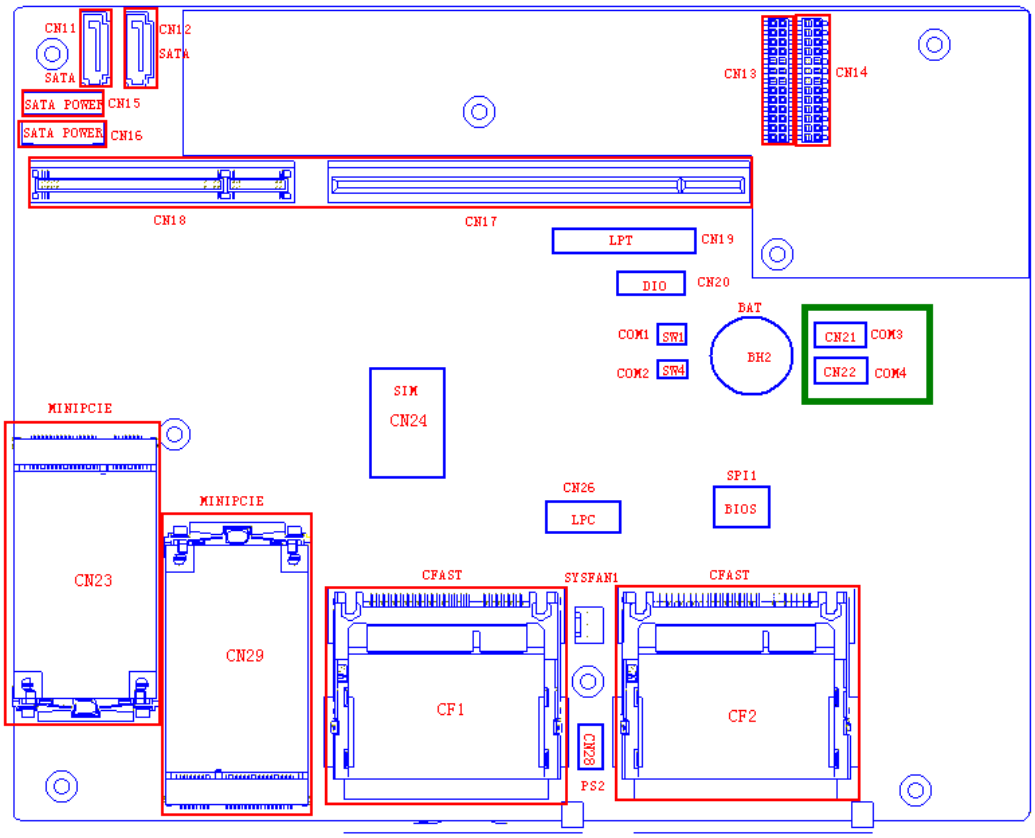
Table 2.2: Terminal Resistor Setting for COM2					
SW4				**Description**	**Function**
Pin4	**Pin3**	**Pin2**	**Pin1**		
X	X	X	On	COM2 Mode RS232	RS232
On	On	On	Off	COM2 Master Mode RS422 with Tx, Rx termination	RS422
On	On	Off	Off	COM2 Slave Mode RS422/RS485 with Tx, Rx termination	RS422/RS485
On	Off	On	Off	COM2 Master Mode RS422 with Rx termination	RS422
On	Off	Off	Off	COM2 Slave Mode RS422 with Rx termination or RS485	RS422/RS485
Off	On	On	Off	COM2 Master Mode RS422 with Tx, termination	RS422
Off	On	Off	Off	COM2 Slave Mode RS422/RS485 with Tx termination	RS422/RS485
Off	Off	On	Off	COM2 Master Mode RS422	RS422
Off	Off	Off	Off	COM2 Slave Mode RS422 or RS485	RS422/RS485

Note! *Please restart your system if you change any setting.*

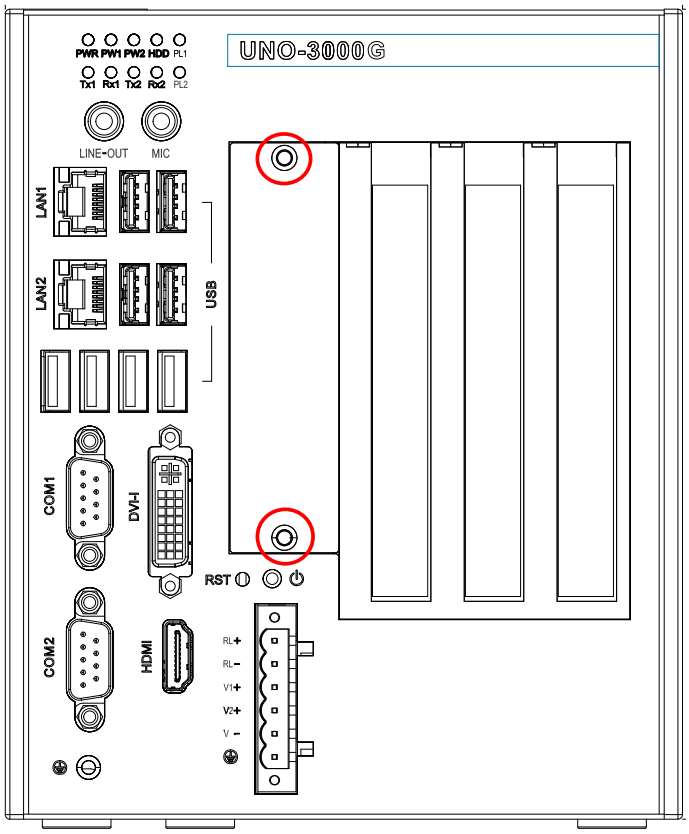
2.3 Optional RS232 Interface (COM3~COM4)

UNO-3000G series product offers two optional RS232 serial communication interfaces: COM3 and COM4. Please refer to Appendix A.3 for their pin assignments. The default mode of these two ports is RS232. In order to use these ports, please follow below steps.

1. Take out the DB9 RS232 cables from the accessory bag.
2. Connect these cables to CN21 and CN22 on the main board.



3. Fix the COM port bracket on the system.



2.4 LAN: Ethernet Connector

UNO-3000G series products are configured with two Gigabit LAN controllers. The controller chips used in all models are 1 x82579LM and 1 x82574L, which are fully compliant with IEEE 802.3u 10/100Base-T CSMA/CD standards and IEEE 802.3ab specification for 1000Mbps Ethernet. The Ethernet port provides a standard RJ-45 jack on board and LED indicators on the front panel to show its status(Green LED for link status and Yellow LED for active status).

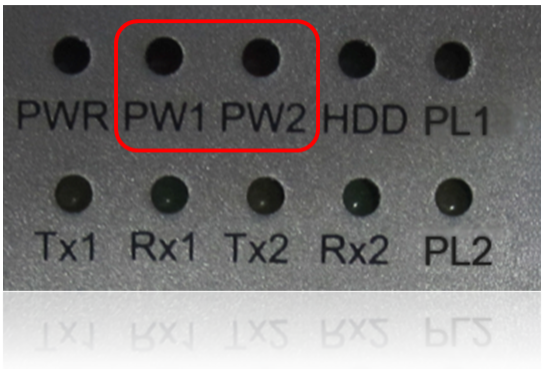
Note! *UNO-3083G/3085G with 82579LM LAN chip can support AMT7.0.*

2.5 Power Connector

The UNO-3000G series products design with a Phoenix connector that carries 12V~24V(±20%) DC external power input and features reversed wiring protection and dual power solution for redundancy. Therefore, it will not cause any damage to the system by reversing wiring of ground and power or one power input failure. Please refer to Appendix A.5.

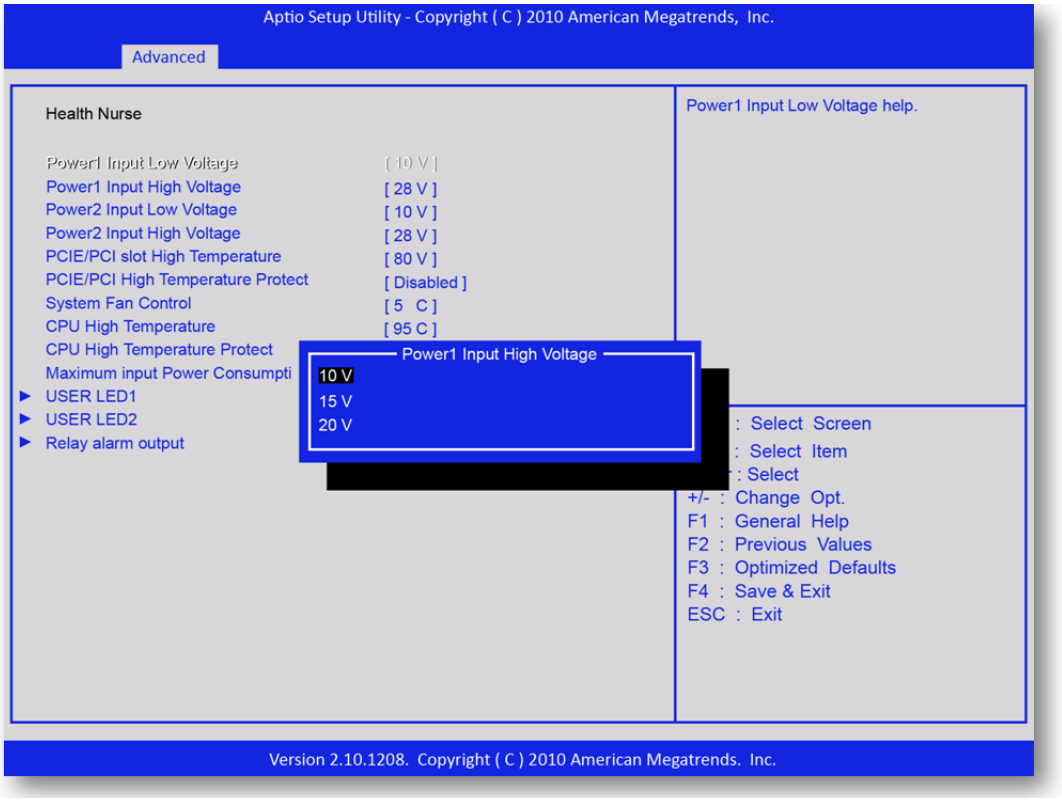
UNO-3000G series support two independent power inputs (PW1 and PW2). Please refer to Appendix A.5.

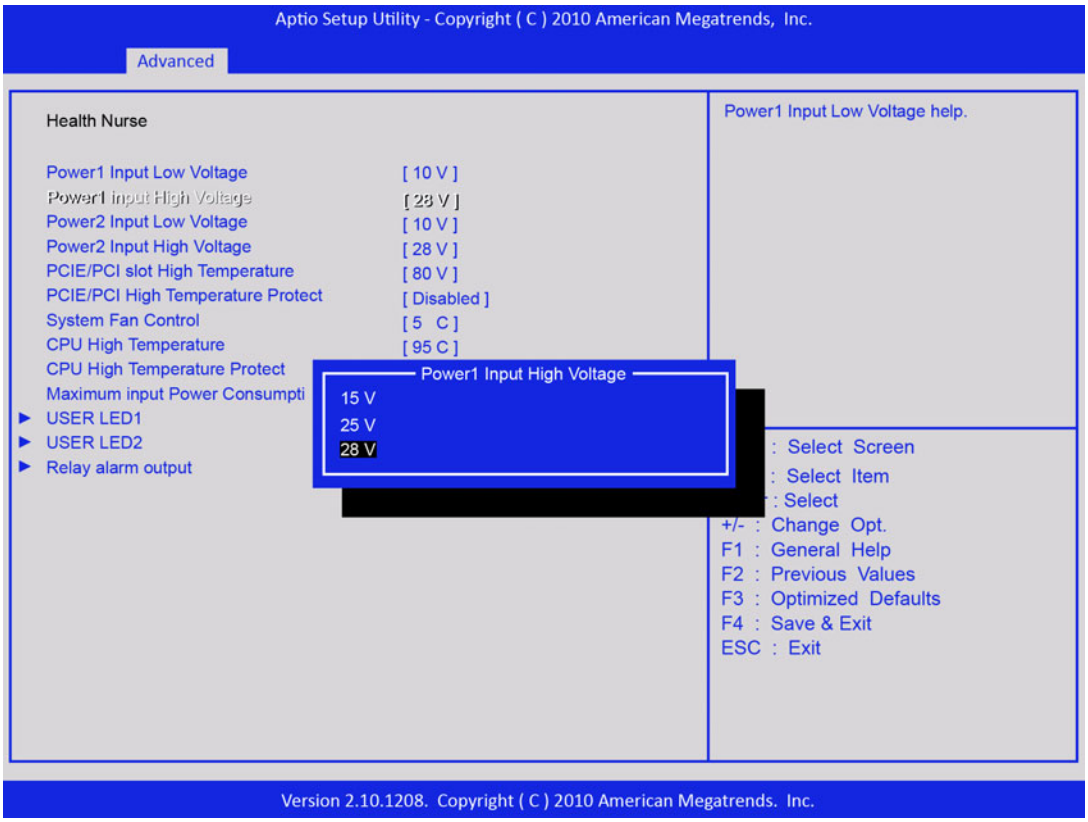
User can monitor power input status by LED indicators.



In BIOS default mode, PW1/PW2 LED will light when power input1 or power input2 fails.

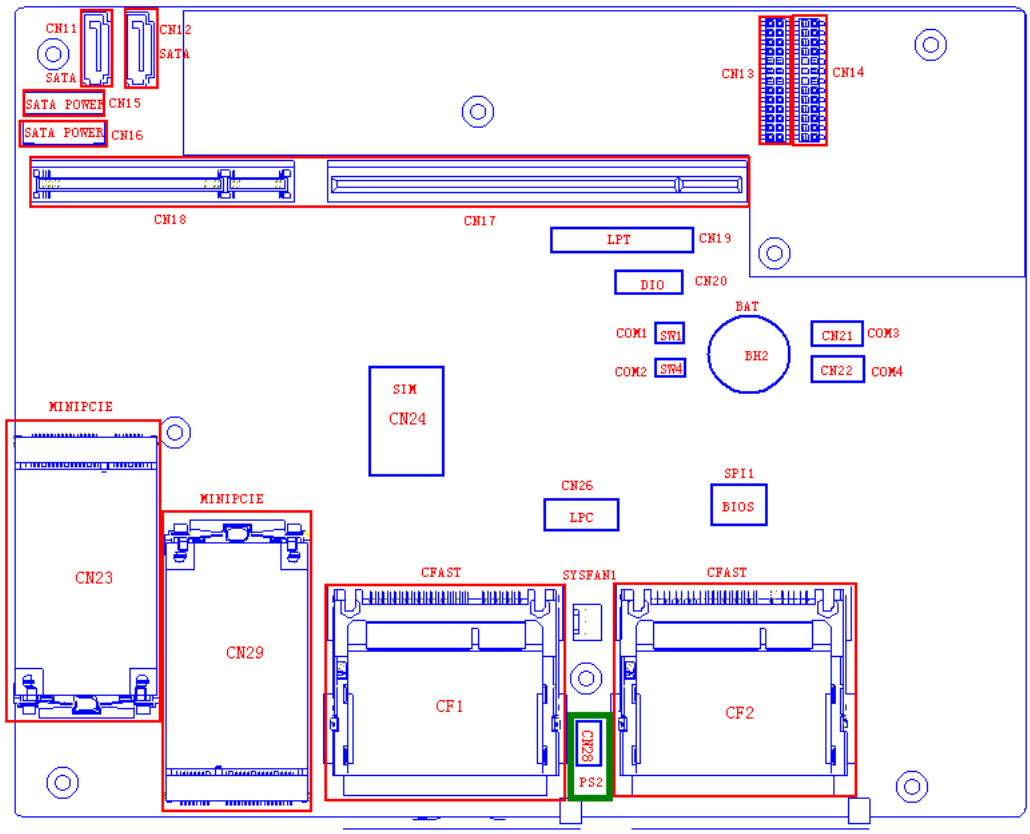
Certainly, PW1/PW2 LED indicators also can be defined by BIOS setting. User can set power input low/high voltage in the BIOS sub-menu "Advance\Health Nurse". When the power input is lower than the preset value of low voltage or higher than the preset value of high voltage, the power LED will turn red.


Aptio Setup Utility - Copyright (C) 2010 American Megatrends, Inc.
Advanced
Health Nurse
Power1 Input Low Voltage help.
Power1 Input Low Voltage [10 V]
Power1 Input High Voltage [28 V]
Power2 Input Low Voltage [10 V]
Power2 Input High Voltage [28 V]
PCIE/PCI slot High Temperature [80 V]
PCIE/PCI High Temperature Protect [Disabled]
System Fan Control [5 C]
CPU High Temperature [95 C]
CPU High Temperature Protect
Maximum input Power Consumpti
USER LED1
USER LED2
Relay alarm output
Power1 Input High Voltage
10 V
15 V
20 V
: Select Screen
: Select Item
: Select
+/- : Change Opt.
F1 : General Help
F2 : Previous Values
F3 : Optimized Defaults
F4 : Save & Exit
ESC : Exit
Version 2.10.1208. Copyright (C) 2010 American Megatrends. Inc.


Aptio Setup Utility - Copyright (C) 2010 American Megatrends, Inc.
Advanced
Health Nurse
Power1 Input Low Voltage help.
Power1 Input Low Voltage [10 V]
Power1 Input High Voltage [28 V]
Power2 Input Low Voltage [10 V]
Power2 Input High Voltage [28 V]
PCIE/PCI slot High Temperature [80 V]
PCIE/PCI High Temperature Protect [Disabled]
System Fan Control [5 C]
CPU High Temperature [95 C]
CPU High Temperature Protect
Maximum input Power Consumpti
USER LED1
USER LED2
Relay alarm output
Power1 Input High Voltage
15 V
25 V
28 V
: Select Screen
: Select Item
: Select
+/- : Change Opt.
F1 : General Help
F2 : Previous Values
F3 : Optimized Defaults
F4 : Save & Exit
ESC : Exit
Version 2.10.1208. Copyright (C) 2010 American Megatrends. Inc.

2.6 PS/2 Keyboard and Mouse Connector (Optional)

The UNO-3000G series products provide a 6-pin Wafer box connector located on CN28 for PS/2 keyboard and mouse. Please refer to the Appendix A.13 for its pin assignment.



2.7 USB Connector

The USB interface supports Plug and Play, which enables you to connect or disconnect a device whenever you want, without turning off the computer. UNO-3000G series products provide eight USB ports and one internal USB on backplane (purchase required), which gives complete Plug&Play and hot swapping for up to 127 external devices. Four of eight USB ports are compatible with USB3.0 device, but with USB2.0 speed. The USB interface complies with USB EHCI, Rev2.0 compliant. The USB port can be disabled in the BIOS setup. Please refer to Appendix A.7 for its pin assignment.

2.8 DVI-I/HDMI Display Connector

The UNO-3000G series product provides a DVI-I/HDMI controller for a high resolution interface, which supports up to full HD resolution for two independent display.

2.9 RTC Battery Specification

UNO-3000G series product has RTC Battery to ensure the setting in bios and system clock can be kept, even with power disconnected for a short time.

- **Type:** BR2032 (Using CR2032 is NOT recommended)
- **Output Voltage:** 3 V_{DC}
- **Location:** BH2, please refer to below figure

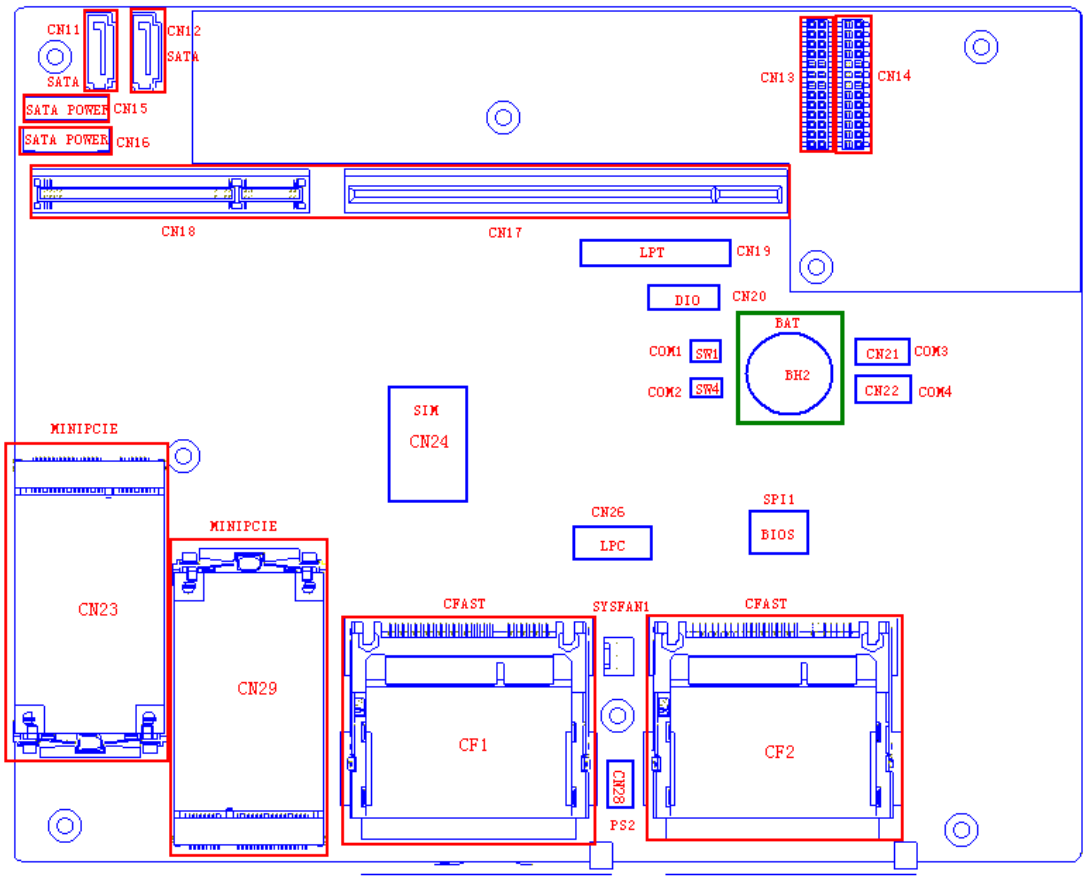
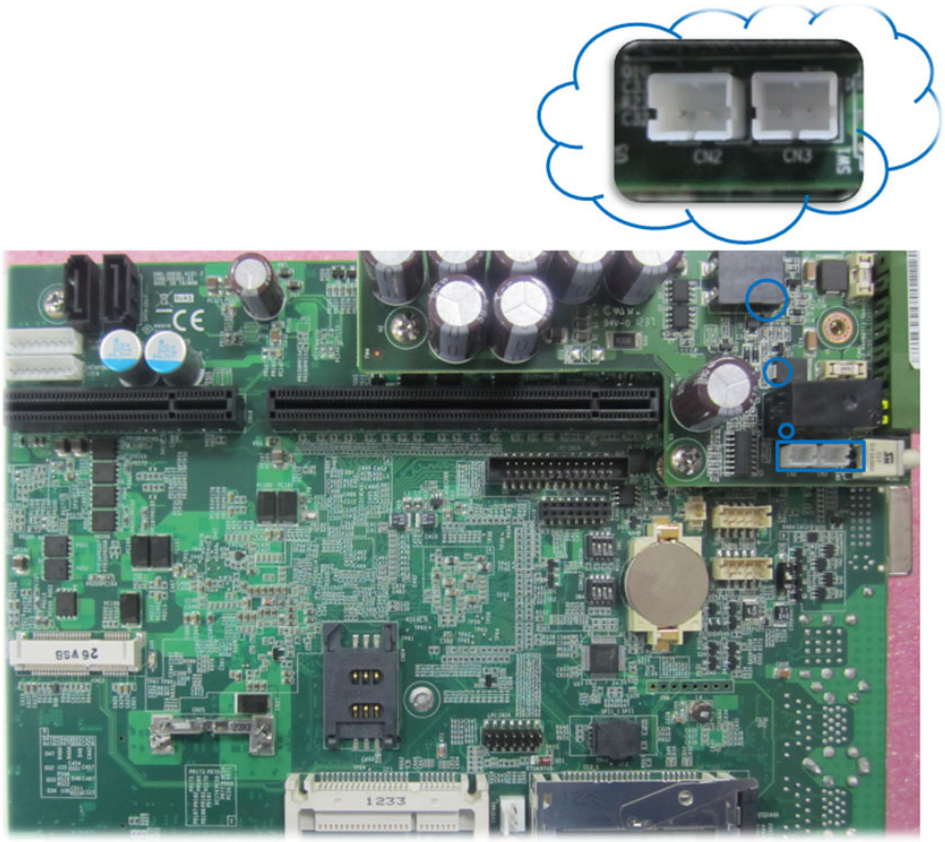


Figure 2.3 RTC Battery Location

2.10 Power Button/Power Management

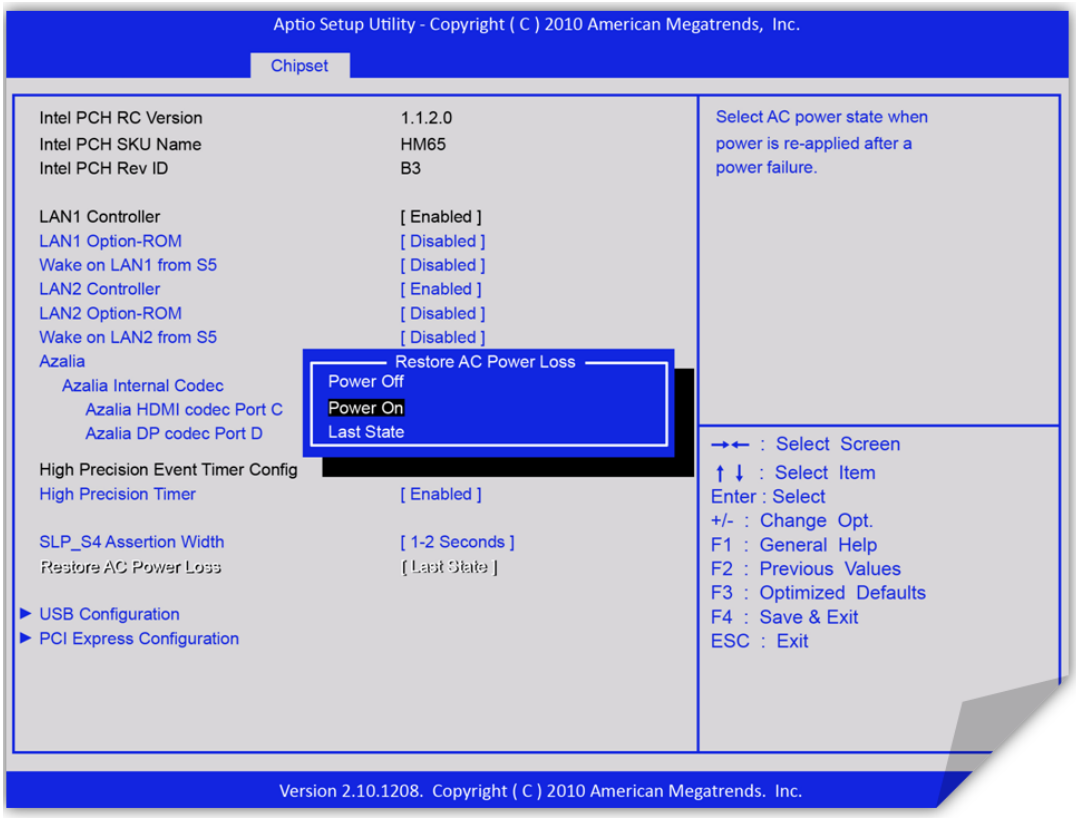
Press the "PWR" button to power on or power off the system(ATX mode). UNO-3000G series products support the ACPI (Advanced Configuration and Power Interface). Except power on/off, it support multiple suspend modes, such as Power On Suspend(S1), Suspend to RAM(S3) and Suspend to Disk(S4).

The other power button is a connector CN2 located on the power board.



User can select AT mode or ATX mode by jumper setting or BIOS setup. Please refer to the Appendix A.12 for jumper setting.

Also, user can set AT/ATX mode in BIOS setup menu "Chipset\NB PCIe Configuration\Restore AC power loss".


Aptio Setup Utility - Copyright (C) 2010 American Megatrends, Inc.
Chipset
Intel PCH RC Version 1.1.2.0
Intel PCH SKU Name HM65
Intel PCH Rev ID B3
LAN1 Controller [Enabled]
LAN1 Option-ROM [Disabled]
Wake on LAN1 from S5 [Disabled]
LAN2 Controller [Enabled]
LAN2 Option-ROM [Disabled]
Wake on LAN2 from S5 [Disabled]
Azalia
Azalia Internal Codec
Azalia HDMI codec Port C
Azalia DP codec Port D
High Precision Event Timer Config
High Precision Timer [Enabled]
SLP_S4 Assertion Width [1-2 Seconds]
Restore AC Power Loss [Last State]
USB Configuration
PCI Express Configuration
Restore AC Power Loss
Power Off
Power On
Last State
Select AC power state when power is re-applied after a power failure.
→← : Select Screen
↑ ↓ : Select Item
Enter : Select
+/- : Change Opt.
F1 : General Help
F2 : Previous Values
F3 : Optimized Defaults
F4 : Save & Exit
ESC : Exit
Version 2.10.1208. Copyright (C) 2010 American Megatrends. Inc.

2.11 Reset Button

Press the "Reset" button on the front panel to reset the system. Also, the other reset connector is CN3 located on the power board.

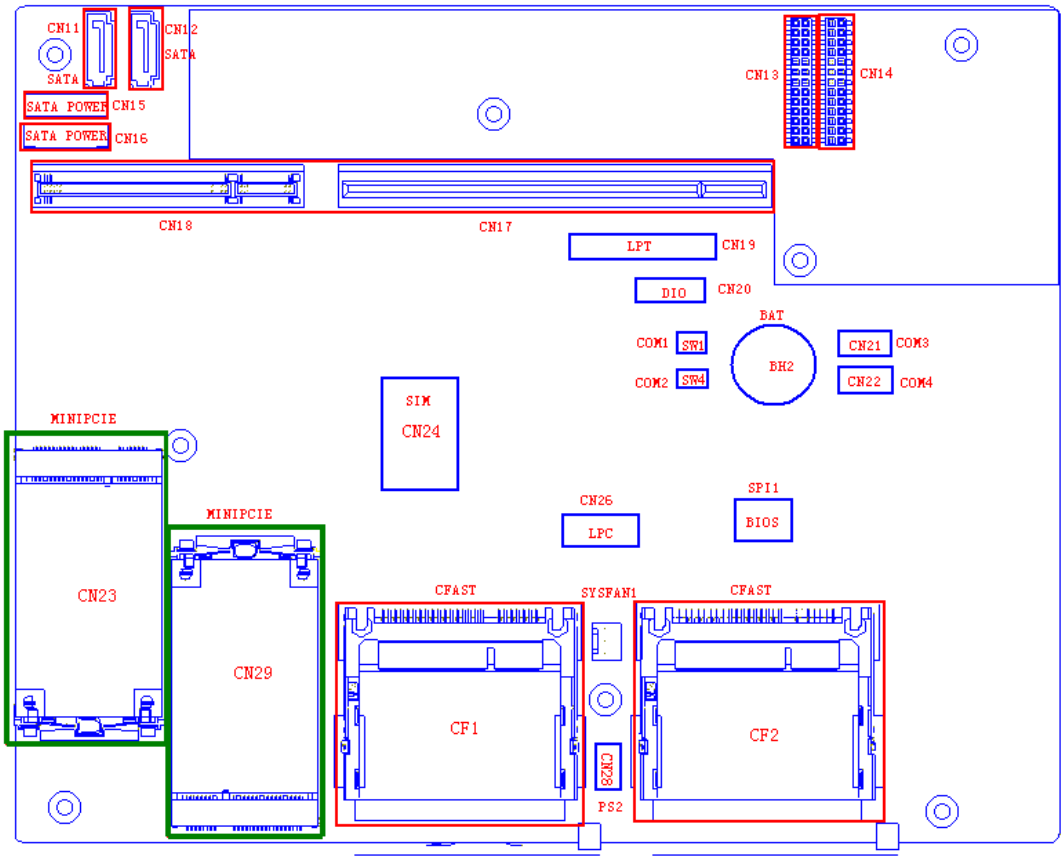
2.12 HD Audio

UNO-3000G series product is configured with ACL892-GR which is a high definition audio codec. It provides 2 phone jack connectors. User can configure the audio function through the audio control panel.

2.13 PCI Express Mini Card Socket

UNO-3000G series product supports two sockets for full size PCI Express mini cards. This interface is mainly target on the wireless application such as WLAN GPRS and 3G. User can install the card easily by the optional kit, please refer to Chapter 3.5 for the details.

An additional SIM card slot is used for 3G application. Please note you still require 3G Mini-PCIe module installed to be able to use 3G functions.



2.14 LED and Buzzer for System Diagnosis

In a “headless application” (an application without a monitor display), it is always difficult to know the system status. Another PC may be needed to monitor a headless device's status via RS-232 or Ethernet. In order to solve this problem, UNO-3000G offers a solution which can diagnose system status through PL1/PL2 programmable LED indicators.

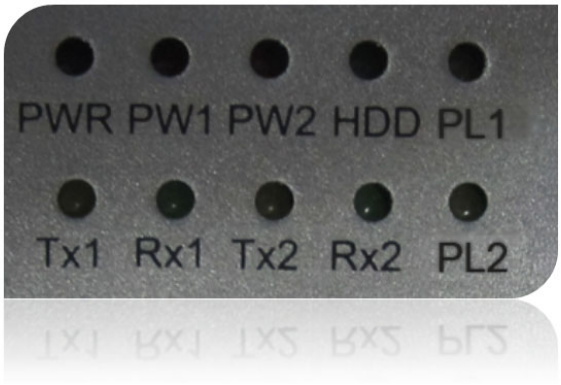
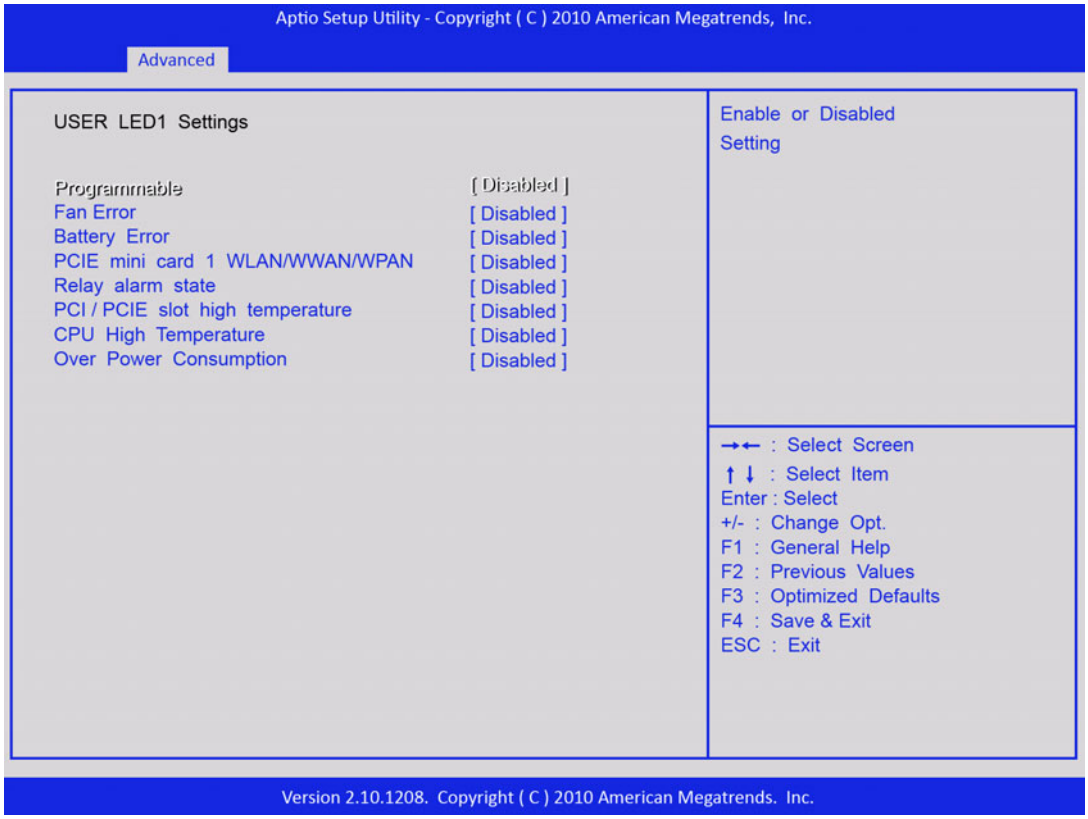


Table 2.3: LED Indicator Definition

LED Indicator	Description
PWR	Green for power on; Orange for S3/S4/S5; Off for no power supply
PW1	Red for power input1 error; Off for power input1 normal
PW2	Red for power input2 error; Off for power input2 normal
HDD	Green for HDD power on; Flash for data transfer
Tx1	Orange for COM1 send data
Rx1	Green for COM1 receive data
Tx2	Orange for COM2 send data
Rx2	Green for COM2 receive data
PL1	Orange for error; Off for normal
PL2	Orange for error; Off for normal

User can define user LED according to their requirements. User LED can be set in BIOS setup manu "Advanced/Health Nurse/User LED Setting".

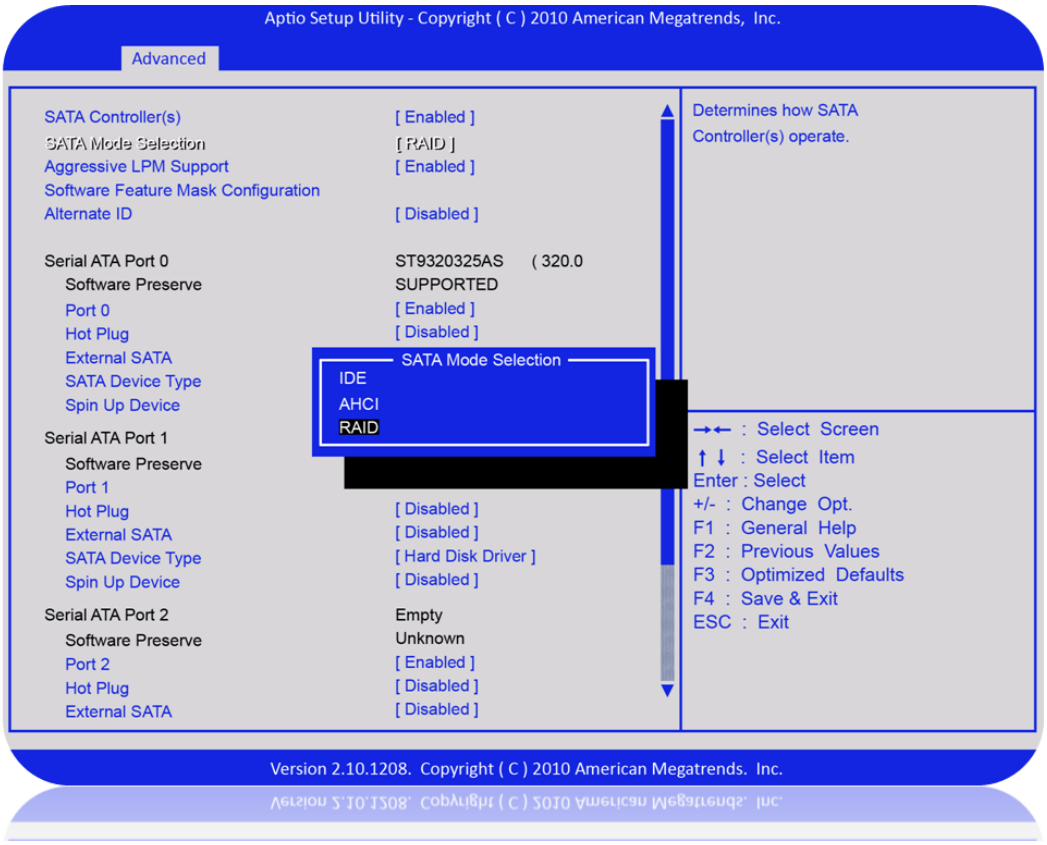

Aptio Setup Utility - Copyright (C) 2010 American Megatrends, Inc.
Advanced
USER LED1 Settings
Programmable [Disabled]
Fan Error [Disabled]
Battery Error [Disabled]
PCIE mini card 1 WLAN/WWAN/WPAN [Disabled]
Relay alarm state [Disabled]
PCI / PCIE slot high temperature [Disabled]
CPU High Temperature [Disabled]
Over Power Consumption [Disabled]
Enable or Disabled
Setting
→← : Select Screen
↑ ↓ : Select Item
Enter : Select
+/- : Change Opt.
F1 : General Help
F2 : Previous Values
F3 : Optimized Defaults
F4 : Save & Exit
ESC : Exit
Version 2.10.1208. Copyright (C) 2010 American Megatrends. Inc.

2.15 SATA HDD Drive

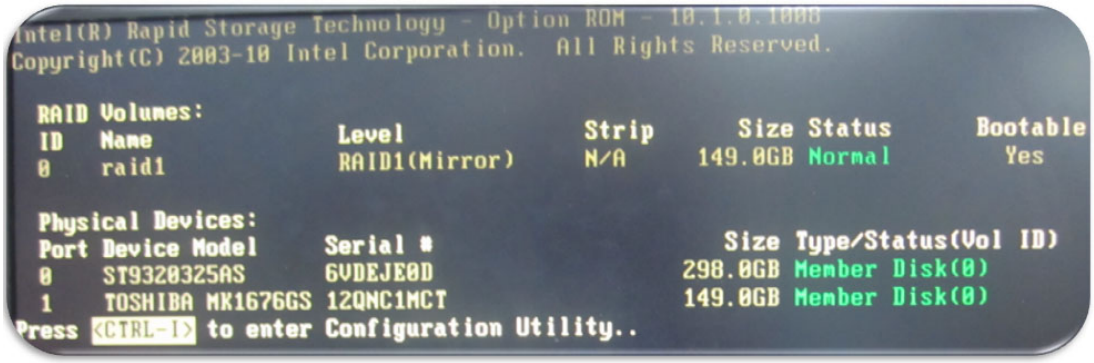
UNO-3000G series product supports two 2.5" SATA HDD with up to 6Gbps speed. UNO-3083G/3085G/3073G/3075G support RAID0 and RAID1. The RAID function should be enabled in BIOS setup before you install an operating system into a RAID volume. User can enable RAID function in BIOS sub-menu "Advance\SATA Configuration".

Please follow the below steps to create a RAID volume.

1. Mount two SATA HDDs in the system.
2. Power on the system.
3. Press "F2" to enter into BIOS setup during POST.
4. Enable RAID mode in BIOS setup menu "Advance\SATA Configuration".


Aptio Setup Utility - Copyright (C) 2010 American Megatrends, Inc.
Advanced
SATA Controller(s) [Enabled]
SATA Mode Selection [RAID]
Aggressive LPM Support [Enabled]
Software Feature Mask Configuration
Alternate ID [Disabled]
Serial ATA Port 0 ST9320325AS (320.0
Software Preserve SUPPORTED
Port 0 [Enabled]
Hot Plug [Disabled]
External SATA
SATA Device Type
Spin Up Device
Serial ATA Port 1
Software Preserve
Port 1
Hot Plug [Disabled]
External SATA [Disabled]
SATA Device Type [Hard Disk Driver]
Spin Up Device [Disabled]
Serial ATA Port 2 Empty
Software Preserve Unknown
Port 2 [Enabled]
Hot Plug [Disabled]
External SATA [Disabled]
SATA Mode Selection
IDE
AHCI
RAID
Determines how SATA Controller(s) operate.
→← : Select Screen
↑ ↓ : Select Item
Enter : Select
+/- : Change Opt.
F1 : General Help
F2 : Previous Values
F3 : Optimized Defaults
F4 : Save & Exit
ESC : Exit
Version 2.10.1208. Copyright (C) 2010 American Megatrends. Inc.

5. Press "F4" to save and exist the BIOS setup.
6. Press "Ctrl+I" to enter RAID configuration utility when the Intel Rapid Storage Technology option ROM screen appears.


Intel(R) Rapid Storage Technology - Option ROM - 10.1.0.1008
Copyright(C) 2003-10 Intel Corporation. All Rights Reserved.
RAID Volumes:
ID Name Level Strip Size Status Bootable
0 raid1 RAID1(Mirror) N/A 149.0GB Normal Yes
Physical Devices:
Port Device Model Serial # Size Type/Status(Vol ID)
0 ST9320325AS 6VDEJE0D 298.0GB Member Disk(0)
1 TOSHIBA MK1676GS 12QNC1MCT 149.0GB Member Disk(0)
Press <CTRL-I> to enter Configuration Utility..

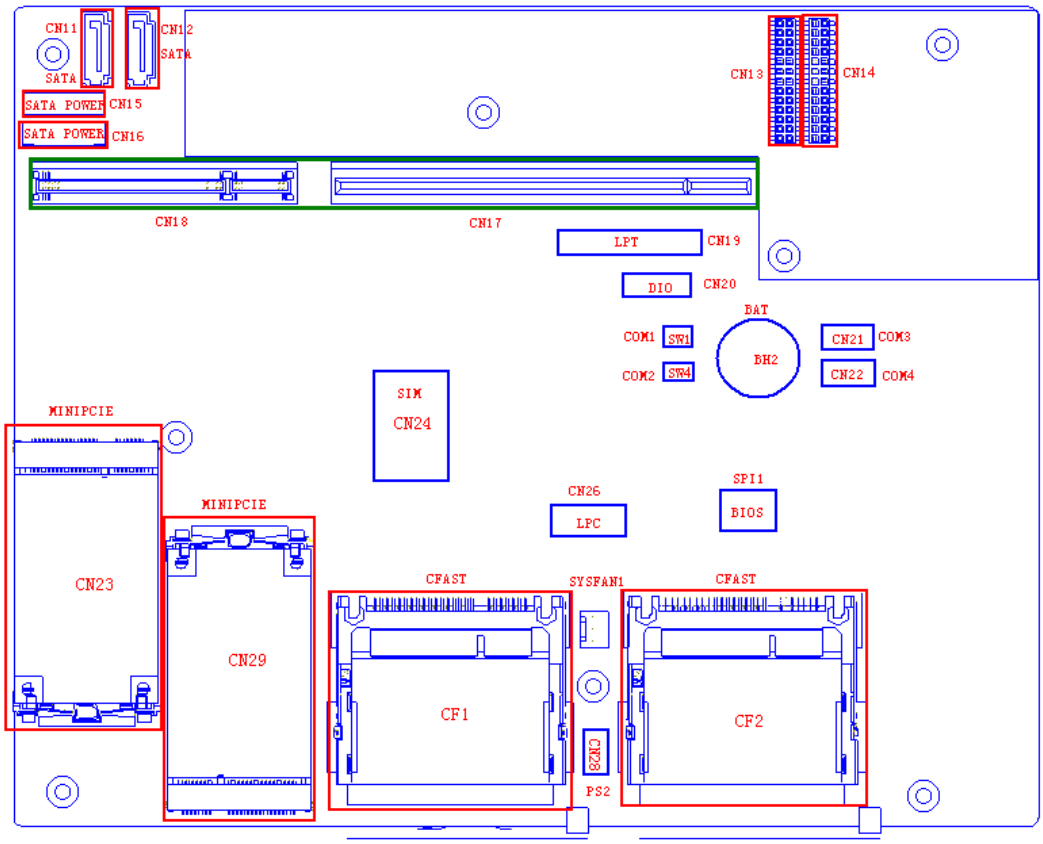
7. Create RAID volume in RAID configuration utility.

Intel(R) Rapid Storage Technology - Option ROM - 10.1.0.1008
Copyright(C) 2003-10 Intel Corporation. All Rights Reserved.
[MAIN MENU]
1. Create RAID Volume
2. Delete RAID Volume
3. Reset Disks to Non-RAID
4. Recovery Volume Options
5. Exit
[DISK/VOLUME INFORMATION]
RAID Volumes:
ID Name Level Strip Size Status Bootable
0 raid1 RAID1(Mirror) N/A 149.0GB Normal Yes
Physical Devices:
Port Device Model Serial # Size Type/Status(Vol ID)
0 ST9320325AS 6VDEJE0D 298.0GB Member Disk(0)
1 TOSHIBA MK1676GS 12QNC1MCT 149.0GB Member Disk(0)
[↑↓]-Select [ESC]-Exit [ENTER]-Select Menu

8. Follow standard procedure to install OS into the RAID volume.

2.16 PCI express Slot

UNO-3000G series product provide a PCIe slot on the main board, which can be used to install backplanes based on user's requirements.



Chapter 3

Initial Setup

This chapter introduces how to initialize UNO-3000G series.

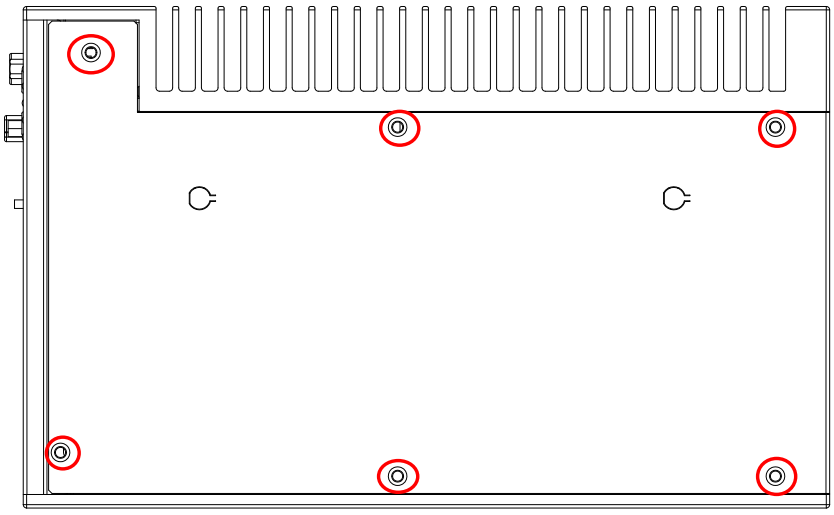
Sections include:

- Inserting a CFast Card
- Chassis Grounding
- Conneting Power
- Connecting a Hard Disk
- BIOS Setup and System Assignments

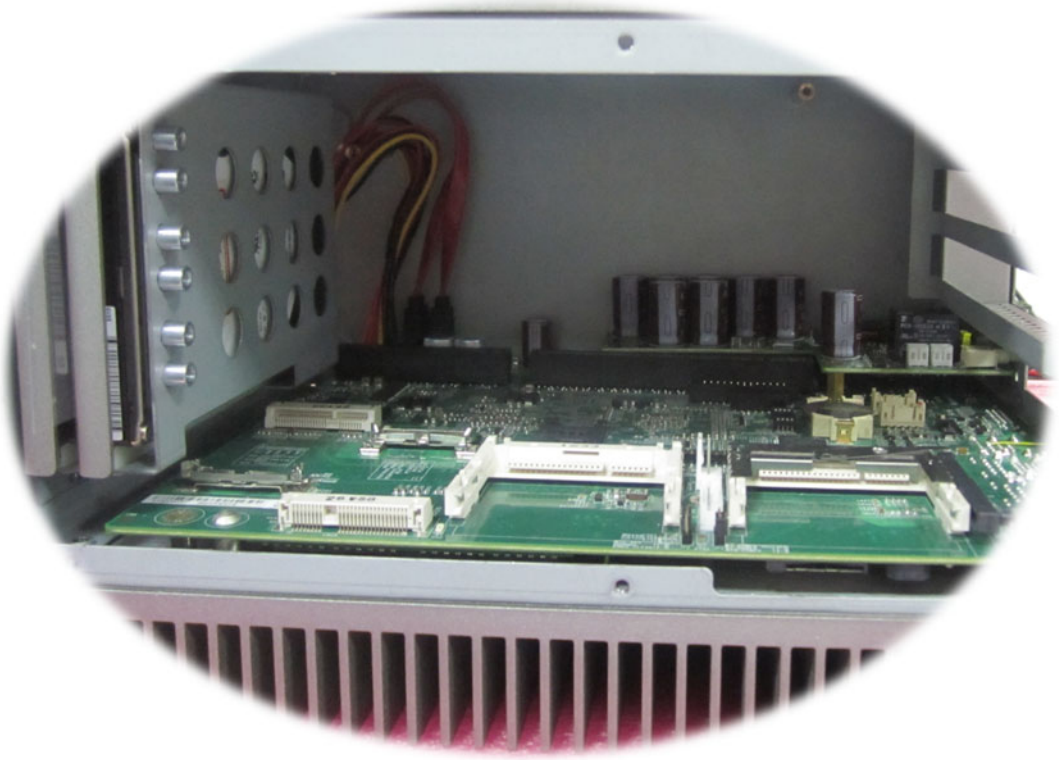
3.1 Inserting a CFast Card

UNO-3000G series product provides two CFast sockets on the main board. Please follow below steps to insert CFast cards.

1. Screw off six screws on the side panel.



2. Insert the CFast card into the CFast socket.



3. Screw the side panel back.

Note! *The CFast is allocated as "the Secondary IDE Master" by default. User can change it to "Primary IDE Master" by BIOS setting. Please enter BIOS and select "Integrated Peripherals > IDE Device Setup > IDE Configuration > Enhanced Mode"*

3.2 Connecting Power

Connect one or two 12~24VDC(±20%) power source to the UNO-3083G/85G/73G(L)/75G(L). The power source can be from either a power adapter or an in-house power source.

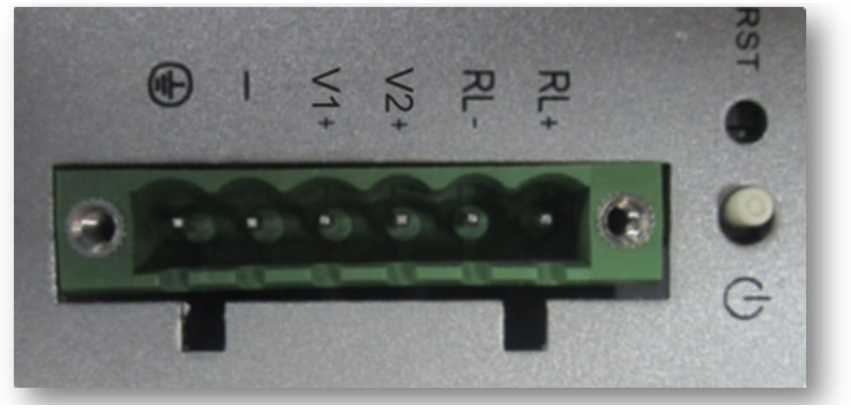


Figure 3.1 Dual Power Connector

3.3 Installing a Hard Disk

Please follow the below steps to install a HDD into the system.

1. Remove the power cord.
2. Screw off six screws on the side panel for UNO-3083G/3073G/3073GL; Screw off two screws on the front panel for UNO-3085G/3075G/3075GL.

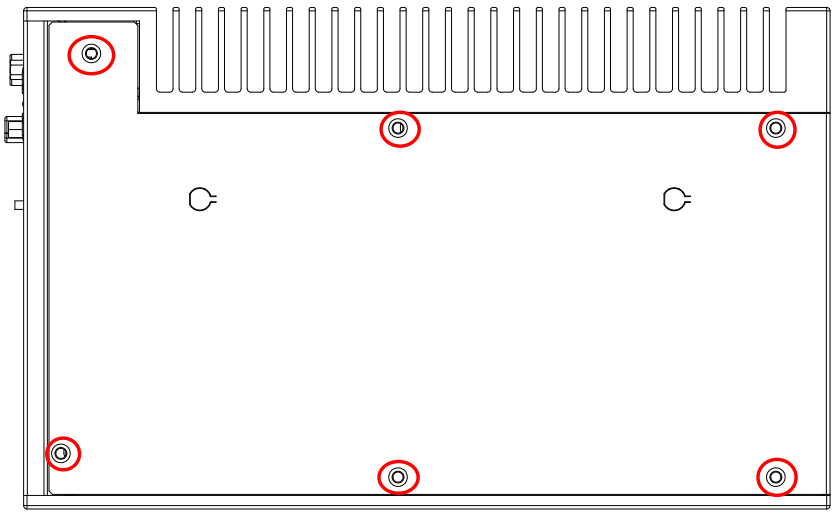


Figure 3.2 UNO-3083 Instillation Guide

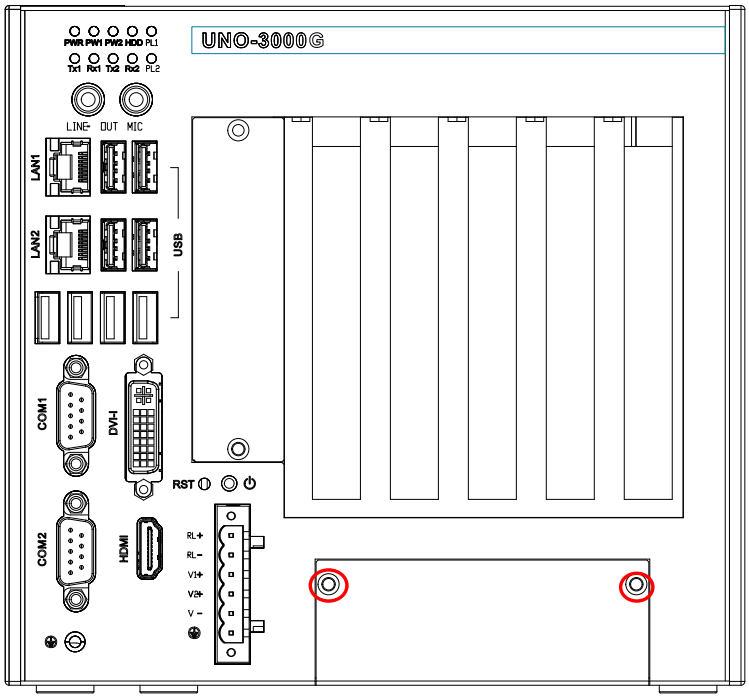


Figure 3.3 UNO-3085 Installation Guide

3. Install a HDD on the HDD bracket.

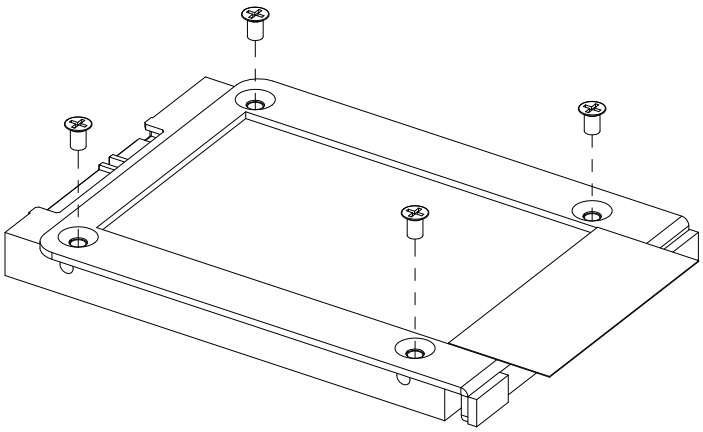


Figure 3.4 HDD Installation Guide

4. Insert the installed HDD into the HDD housing.

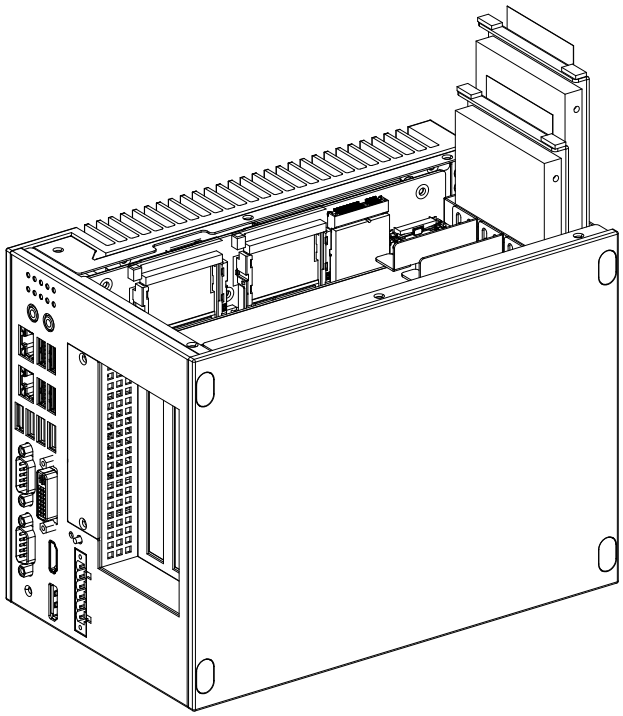


Figure 3.5 HDD Installation for UNO-3083

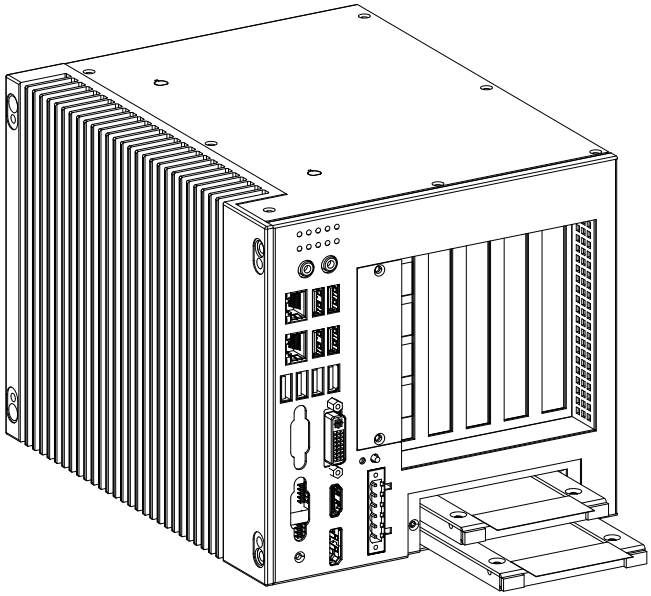


Figure 3.6 HDD Installation for UNO-3085

5. Screw the side panel or the front panel back.

3.4 Installing a Wireless LAN Card and Antenna

Please contact Advantech to prepare the following optional kit:

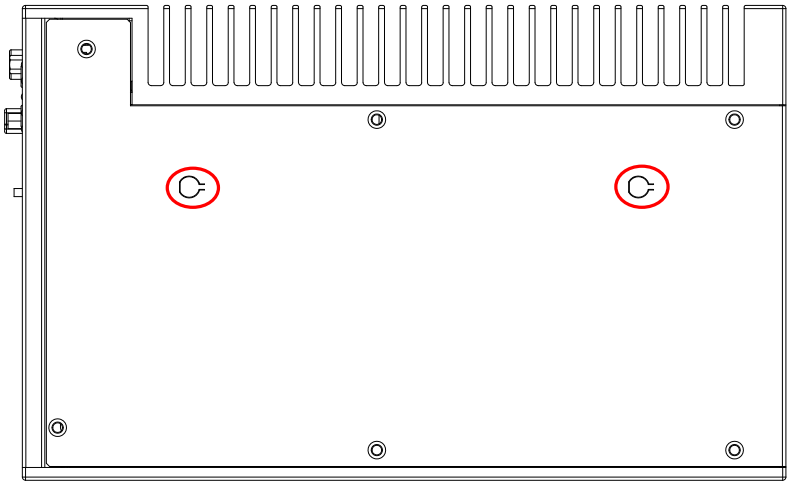
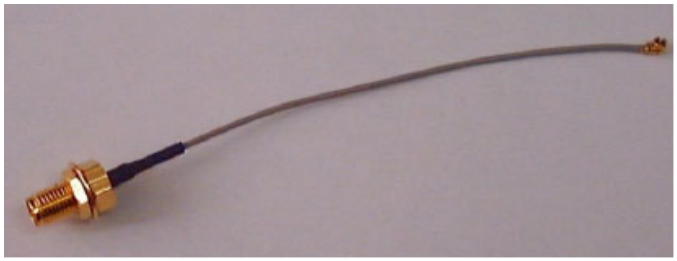


Figure 3.7 Side Panel for Antenna

- The internal cable: 1750006043 (15cm)



Wireless Module (PCI Express mini card)

- One of the suggested module is EWM-W138H01E which is a verified Wireless IEEE 802.11b/g/n module

Antenna

- Please select the necessary specification according to your application.
- One of the suggested antenna is 1750002842.

Then follow the below steps for the installation:

1. Unscrew the bottom panel and open it.
2. Remove the hole(s) on the rear panel for antenna installation.
3. Install the internal cable 1750006043 (15cm) on the rear panel.

4. Plug the Wireless module onto the PCI Express mini card socket (CN23 or CN29)

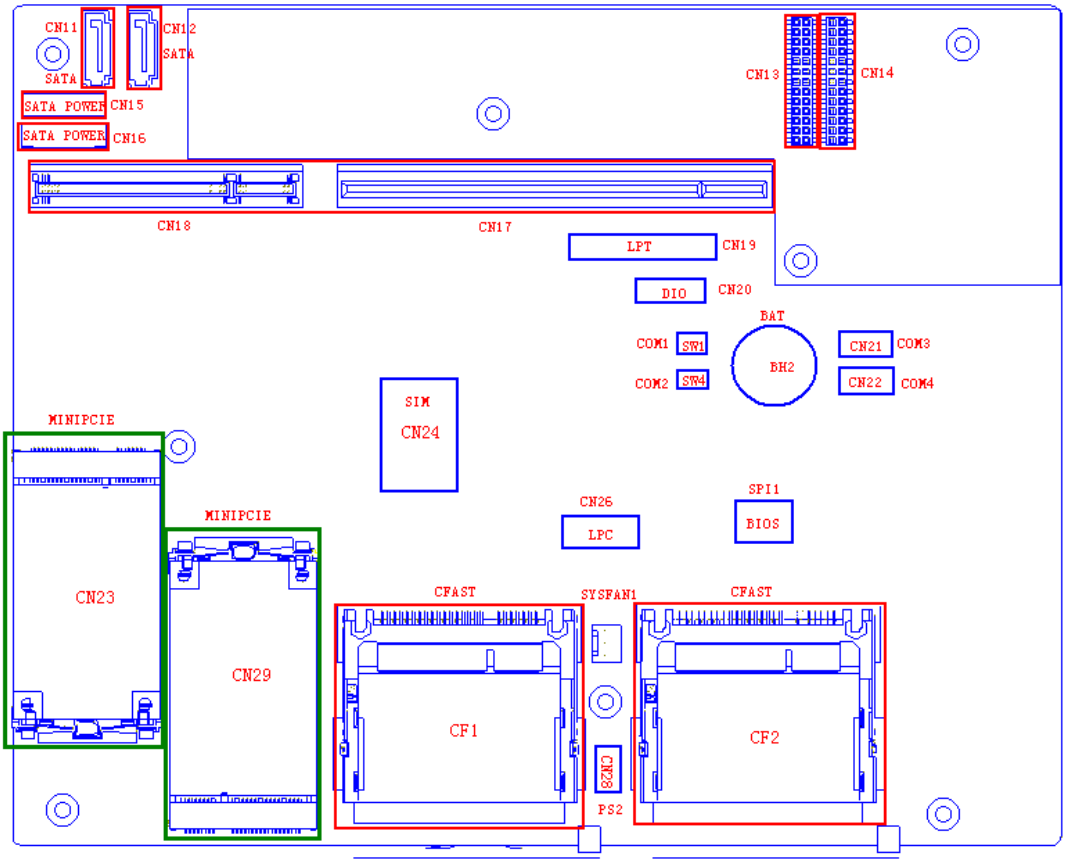


Figure 3.8 Mini PCIe Socket Location

5. Connect the internal cable with the module.
6. Screw back the bottom panel.
7. Assemble the antenna on the SMA connector.

3.5 Mounting UNO-3000G

There are 3 types of mounting kits for UNO-3000G series.

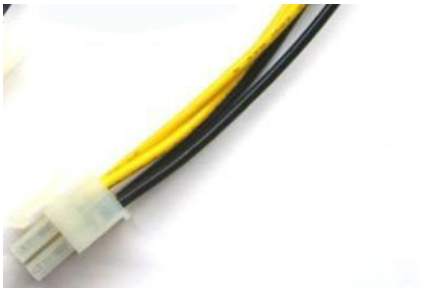
- Panel mount
- Stand mount
- Wall mount

Note! *Due to thermal performance issues, walll mount will only support specific models.*

3.6 Installing Power Cable

UNO-3000G series provide an internal backup power on backplane, so that it can provide power for a PCI blower, external video card or other devices that required additional power.

Yellow	+12V
Black	GND



Appendix A

System Settings and Pin Assignments

A.1 System I/O Address and Interrupt Assignment

Table A.1: Interrupt Assignment	
Interrupt No.	**Interrupt Source**
IRQ00	System Timer
IRQ01	Standard PS/2 Keyboard
IRQ03	Communication Port(COM2)
IRQ04	Communication Port(COM1)
IRQ05	SMBus Controller
IRQ08	System CMOS/real time clock
IRQ10	Communication Port(COM3, COM4)
IRQ11	PCI Simple Communications Controller
IRQ12	Standard PS/2 Mouse
IRQ13	Numeric data processor
IRQ16	USB Enhanced Host Controller
IRQ19	SATA Storage Controller
IRQ22	High Definition Audio Controller
IRQ23	USB Enhanced Host Controller

A.2 Board Connectors and Jumpers

There are several connectors and jumpers on the UNO-3000G mainboard and power board. The following sections will tell you how to configure the hardware setting. Figure A.1 shows the locations of these connectors and jumpers.

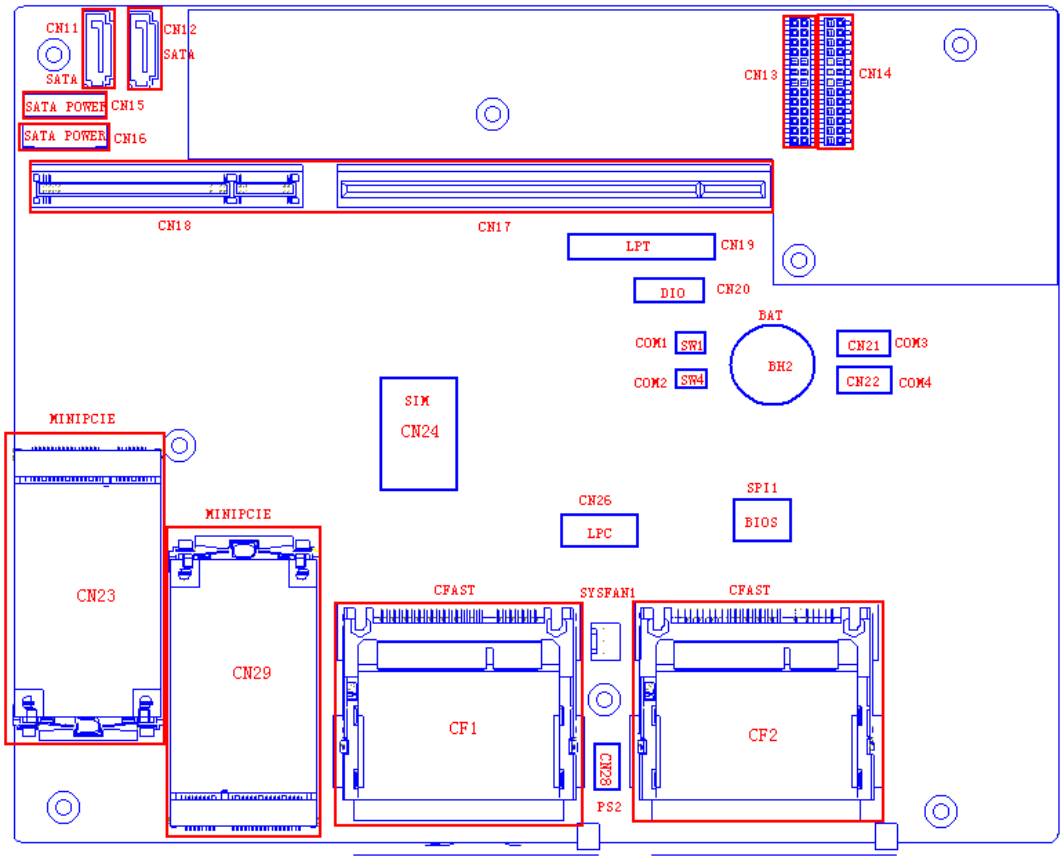


Figure A.1 Connector & Jumper Locations (front)

Table A.2: Connectors and Jumpers (Main Board)	
Label	**Function**
CN11, CN12	SATA Signal Connector
CN15, CN16	SATA Power Connector
CN23, CN29	Mini PCIe Socket
CF1, CF2	CFast Card Socket
CN28	PS/2 Keyboard and Mouse Connector
CN10, CN24	SIM Card Socket
CN26	LPC Debug Pin Header
BH2	Battery for RTC
CN21	COM3
CN22	COM4
CN19	LPT
CN17, CN18	PCIe Slot for Backplane
BH1	Reserved Battery Pin Header
JP2	Clear CMOS
JP3	AT/ATX Selection

Table A.3: Connectors and Jumpers (Power Board)	
Label	**Function**
CN2	Power Button Connector
CN3	Reset Button Connector
CN4	Relay Output

A.3 RS-232 Standard Serial Port

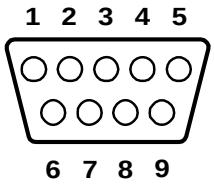


Table A.4: RS-232 Serial Port Pin Assignments	
Pin	**Pin Name**
1	DCD
2	RxD
3	TxD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	RI

A.4 RS-232/422/485 Serial Port (COM1 ~ COM2)

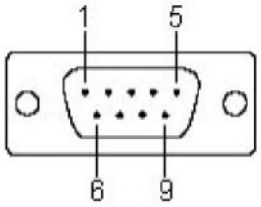


Table A.5: RS-232/422/485 Serial Port Pin Assignments

Pin	RS-232	RS-422	RS-485
1	DCD	TX-	Data-
2	RxD	TX+	Data+
3	TxD	RX+	NC
4	DTR	RX-	NC
5	GND	GND	GND
6	DSR	NC	NC
7	RTS	NC	NC
8	CTS	NC	NC
9	RI	NC	NC

A.5 Power Connector (PWR)

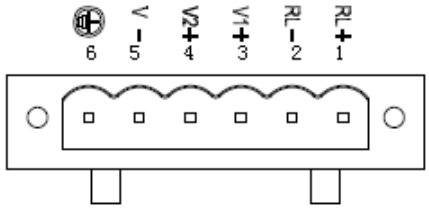


Table A.6: Power Connector Pin Assignments

Pin	Pin Definition
1	Relay_Output
2	Relay_Ground
3	+VDC1
4	+VDC2
5	PGND
6	GND_CASE

A.6 PS/2 Keyboard and Mouse Connector

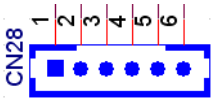


Table A.7: KB/MS Connector Pin Assignments	
Pin	**Pin Definition**
1	KB CLK
2	KB Data
3	MS CLK
4	GND
5	VCC
6	MS Data

A.7 USB Connector

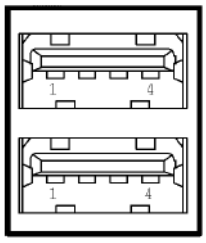


Table A.8: USB connector pin assignments		
Pin	**Signal Name**	**Cable Color**
1	VCC	Red
2	DATA-	White
3	DATA+	Green
4	GND	Black

A.8 HDMI Display Connector

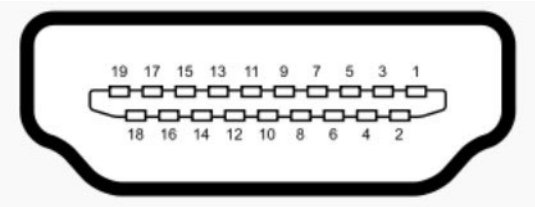


Table A.9: HDMI Display Connector

Pin	Signal	Pin	Signal
1	TMDS Data2+	2	TMDS Data2 Shield
3	TMDS Data2-	4	TMDS Data1+
5	TMDS Data1 Shield	6	TMDS Data1-
7	TMDS Data0+	8	TMDS Data0 Shield
9	TMDS Data0-	10	TMDS Clock+
11	TMDS Clock Shield	12	TMDS Clock-
13	CEC	14	Reserved
15	SCL	16	SDA
17	DDC/CEC/HEC Ground	18	+5 V Power (max 50 mA)
19	Hot Plug Detect		

A.9 DVI-I Connector

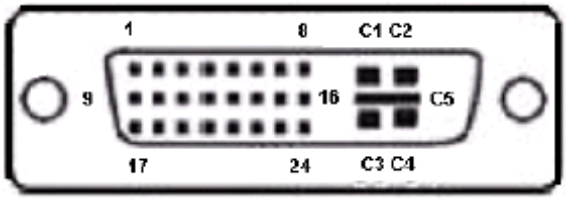


Table A.10: DVI-I connector pin assignment

Pin	Signal Name
1	TMDS_C2#
2	TMDS_C2
3	GND
4	CRT_DDC_CLK
5	CRT_DDC_DATA
6	MDVI_CLK
7	MDVI_DATA
8	VGAVSY
9	TMDS_C1#
10	TMDS_C1
11	GND
12	-
13	-

Table A.10: DVI-I connector pin assignment	
14	VCC_DVI
15	VGA Detect
16	HP_DET
17	TMDS_C0#
18	TMDS_C0
19	GND
20	-
21	-
22	GND
23	TMDS_CK#
24	TMDS_CK
C1	VGAR
C2	VGAG
C3	VGAB
C4	VGAHSY
C5	GND

A.10 DisplayPort Display Connector

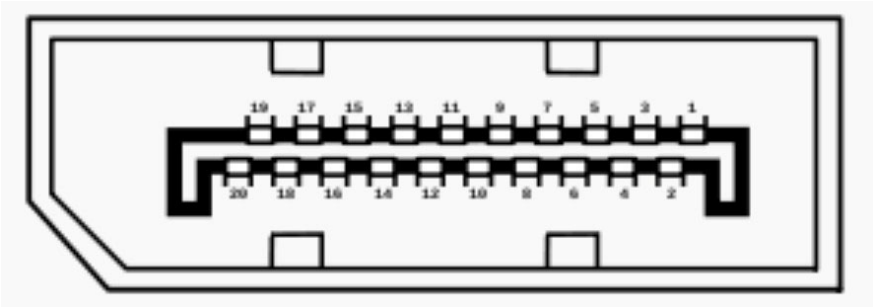


Table A.11: DisplayPort adaptor cable pin assignment	
Pin	**Signal Name**
1	ML_Lane 0 (p)
2	GND
3	ML_Lane 0 (n)
4	ML_Lane 1 (p)
5	GND
6	ML_Lane 1 (n)
7	ML_Lane 2 (p)
8	GND
9	ML_Lane 2 (n)
10	ML_Lane 3 (p)
11	GND
12	ML_Lane 3 (n)
13	CONFIG1
14	CONFIG2
15	AUX CH (p)
16	GND

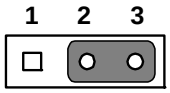
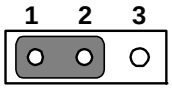
Table A.11: DisplayPort adaptor cable pin assignment	
17	AUX CH (n)
18	Hot Plug
19	Return
20	DP_PWR

A.11 Clear CMOS (JP2)

This jumper is used to erase CMOS data and reset system BIOS information.

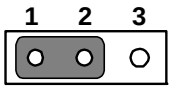
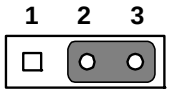
Follow the procedures below to clear the CMOS.

1. Turn off the system.
2. Close jumper JP2 (2-3) to clear CMOS .
3. Remove jumper JP2 (1-2)
4. Turn on the system. The CMOS is now cleared.
5. Turn on the system. The BIOS is reset to its default setting.

Table A.12: JP2 Clear CMOS	
Configuration	**Function**
	Clear CMOS
	Normal (Default)

A.12 System Power AT or ATX Selection (JP3)

UNO-3000G series product can set AT or ATX power mode in the bios or hardware jumper setting.

Table A.13: AT/ATX Selection	
Configuration	**Function**
	AT mode
	ATX mode (default)

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